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University of California Bulletin

THIRD SERIES. Vol. IX, No. 6

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ANNUAL REPORT OF THE PRESIDENT OF THE UNIVERSITY 1914-1915

DECEMBER, 1915

PUBLISHED BY THE
UNIVERSITY OF CALIFORNIA
BERKELEY

Administrative Bulletins of the University of California

1915-16. No. 14

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14. President's Annual Report. December.

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FEB 17 1916

Annual Report of the President of
the University on Behalf of the
Regents to His Excellency the
Governor of the State of California

1914-1915

UNIVERSITY OF CALIFORNIA PRESS

BERKELEY

1915

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REPORT OF THE PRESIDENT OF THE UNIVERSITY

UNIVERSITY OF CALIFORNIA,
BERKELEY, December 22, 1915.

*To His Excellency Hiram W. Johnson,
Governor of the State of California.*

SIR: I have pleasure herewith to submit my Annual Report on the condition of the University. In round numbers, the present attendance of students at the University reaches six thousand. Five thousand of these are undergraduates, one thousand graduates. The total number regularly enrolled in schools conducted by the University approximates twelve thousand and the total number directly reached by University instruction about seventy thousand.

Increase in Enrollment	The undergraduates in the colleges at Berkeley, on November 1, 1915, numbered, to be exact, 4832, as compared with 3033 on the corresponding date five years before. The graduate students at Berkeley number 782, as compared with 416 on November 1, 1910. The total registration on November 1, 1915, was 5977, or approximately double the total registration on a corresponding date seven years earlier, the total registration having been 3094 on November 1, 1908.
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The Summer Session of 1915 enrolled 5364. Deducting duplicate registrations and making allowance for the six hundred students who may be expected to enroll in January, the total registration for 1915-1916 will unquestionably exceed 11,150, and this is without taking into account the 409 students in the San Francisco Institute of Art, the 380 in the Wilmerding Trades School, the 312 in the University Farm School at Davis (enrolled for a three-year course and, in average age, older than the undergraduates of the College of Agriculture), the 172 enrolled for the short courses in Agriculture, the 1473 enrolled for correspondence instruction or University Extension class work in the State prisons, the 600 others enrolled for University Ex-

tension classes, the 3513 who have enrolled with the University Extension Division for correspondence instruction in University subjects, or the 19,000 who have thus far enrolled for correspondence instruction in agriculture, or the 32,413 per annum, who represent the average annual attendance upon Farmers' Institutes, agricultural demonstrations and travelling schools in agriculture, and the like. Each year the University will be found to give direct instruction to not less than 70,000 people.

The amount spent during the year ending June 30, 1915, for education and research was \$918,955.99 (this was exclusive of such matters as the University Hospital of the Medical School; the work of the Department of Agriculture, \$491,681.33; expenditures on University Extension, the Los Angeles Medical Department, the Summer Session, and those two great research undertakings of the University, the Lick Observatory and the Scripps Institution for Biological Research). The expenditure on buildings and improvements was \$438,575.86; on administration and operation (including such great items as lighting and heating, the care of grounds and buildings, the Infirmary, which was supported wholly by student fees at the rate of \$6 per annum; the gymnasium, and publications) was \$354,341.97; the disbursements from the class funds and for scholarships, fellowships, and prizes was \$32,653.17, while there was an expenditure of \$186,142.38, which represents merely the outgo in conducting various business enterprises of the Department of Agriculture and the University Farm, such as the farm work of the University Farm itself, the maintenance of the dairy on the University campus, the manufacture and distribution of serum to immunize swine against hog cholera, and the inspection of commercial fertilizers, these expenditures being offset by receipts from these various activities for the economic or agricultural welfare of the State. The total expenditure for the year ending June 30, 1915, including all these items of building operations, the maintenance of hospitals and gymnasiums, the economic activities of the Department of Agriculture, and agricultural expenditures offset by agricultural income, was \$2,727,616.84.

The income of the University available for immediate use was \$2,636,412.57, this figure not including additions to endowment during the year, which amounted to \$147,611.71. The sources of this income were as follows:

The United States, for the Agricultural Experiment Station, the work of the Farm Advisers, and other forms of agricultural extension work, and aid in general to the teaching of agriculture and mechanic arts	\$90,000.00
The State of California, for current expenses of the University	\$930,538.42
The State of California, for maintenance of the College of Agriculture and its various activities in experimentation and in agricultural extension	391,908.98
The State of California, for building operations at the University	233,179.47
The State of California, for the purchase of land and the erection of buildings for various agricultural purposes, equipment and maintenance of the Los Angeles Medical Department, support of the Scripps Institution for Biological Research, etc.	129,760.84
	<hr/> 1,685,387.71
Student fees, including gymnasium and Infirmary fees, Summer Session fees, laboratory deposits subject to return, etc.	252,183.25
Clinical fees from hospitals and the Dental Infirmary	53,075.43
Receipts from sale of agricultural produce, etc.	199,273.19
Income on endowment created by the United States, the State of California, and private donors	236,854.68
Gifts:	
For current use	\$70,388.39
For buildings and improvements	9,249.92
For endowments	147,611.71
	<hr/> 227,250.02
Income of the Kearney Vineyard	40,000.00
	<hr/> \$2,784,024.28

The present assets of the University are approximately sixteen and a half millions, of which the principal items are real estate and buildings, \$8,299,597.64; equipment, \$2,535,554.66, and investments, \$5,246,361.83.

**Need of More
Endowment
for Teaching** As the income and the expenditures of the University increase, however, the moneys available for the fundamental work of instruction in the standard subjects fail to increase in proportion to the growth in the burden of teaching to be carried. This results, in substance, from the fact that additions to income are usually restricted to specific purposes, of the highest usefulness in themselves, but none the less increasing rather than lessening the general financial burden of the University. The same thing, naturally enough, is true of most of the gifts to the University. Of the larger gifts of the past year, for example, none is more highly valued nor likely to be of more far-reaching use than Mr. Albert Bonnheim's gift of \$100,000. This is for scholarships. The Dr. C. W. and Mrs. Sarah E. Fox Memorial Fund of \$100,000 is for the maintenance of free beds in the University Hospital, medical students to enjoy first claim upon their use. Then there are various generous annual subventions, restricted to use for scientific research, such as the yearly gift of Miss Ellen B. Scripps and Mr. E. W. Scripps toward the maintenance of the Scripps Institution for Biological Research at La Jolla; of Mr. Ogden Mills for the D. O. Mills Expedition from the Lick Observatory to the Southern Hemisphere; of Miss Annie M. Alexander, for the maintenance of the California Museum of Vertebrate Zoology in the collection of specimens and research based thereon.

All the more, therefore, has the University pressing need of additions to its endowment and to its income not restricted to specific purposes but available for such needs as are most urgently felt. The endowment of a professorship, however, will serve in the direction of both purposes; namely, first, as an aid to the University by relief of its funds, and second, by differentiating and widening the scope of its instruction. With growth in the number of students, the fact becomes all the more conspicuous and regrettable that the University is undermanned in the higher professorial ranks. A result of the present division of income by needs is that, for instance, there is but one single full professor in the Department of English as compared with

nine full professors in the Department of English at Harvard University; but two full professors in the Department of Mathematics as compared with five in Princeton University, which had, last year, only 1643 students, or only a little over one-fourth as many as were registered for full courses in the University of California.

Erection of New Buildings Four of the most urgently pressing needs in the way of additional building accommodations for the increasing numbers of students are being met through the action of the people of California in voting \$1,800,000 in University Building Bonds. Work is in progress on a classroom building, in which some 3500 students can be taught at one time. Plans have been finished for an addition to the Library, which will offer a most acceptable relief to the present overcrowding of the stack. Plans are being drawn for two other buildings. One, a second unit of the great Agriculture Group that is to be; and the second representing the first unit of the great Chemical Laboratory that is to be.

An Adequate Auditorium Much Needed In looking toward further buildings, one of the first needs, if not absolutely the first, is for an adequate auditorium, a place where the whole body of the students can be assembled. When bad weather forbids the use of the Greek Theatre, there is no place of assemblage which will hold much more than one-third of the students. Our University Meetings are an essential institution. They are an essential and fundamental part of the government of the University as it now exists. It is in these meetings that the students are made to feel that they belong to a body which has life and spiritual purpose. Eight or ten years ago the Harmon Gymnasium was large enough to hold all who would on any ordinary occasion assemble. It happens not infrequently now that 500 to 1000 students come to the doors of the University Meeting and are turned away. The student who does not attend our University Meetings is not likely, in the long run, to be a good citizen of our University community. At any rate, we cannot expect to make use of his assistance in building up the community life.

The essential reason for the importance of the University Meeting in the past has been that the students became, in that meeting, one body. They could be addressed as a unit. Their action and their sympathy could be expressed as that of a unitary body. It is not too much to say that our system of student self-government, developed in the last fifteen years, has received from the students its competent validation and *imprimatur* through the existence of this meeting. Through its influence, also, the students have themselves received and maintained what we call a civic consciousness.

Such an auditorium might well contain not only a great audience hall, equipped with an organ, where the University, as a whole, might assemble, but also a concert room or a small theatre, with a well equipped stage where student plays might be presented and lectures and recitals given. Or such a "Little Theatre" might, instead, be housed in a separate building with the Department of Music.

**Alumni Hall
or Student
Union** The building of an Alumni Hall, or Student Union, as it might well be called, is another undertaking whose realization is greatly needed for the sake of an effective student social consciousness, and that the leaven of friendly acquaintance may work throughout the student body. It would be essentially a student club. The erection of such a Student Union would, most fittingly, be undertaken by the alumni, as a memorial to be dedicated in 1918, on the occasion of the fiftieth anniversary of our foundation as a State University. The splendid response of the alumni to the call of "Fifty Classes Back" last spring augurs well for the success of this Semi-Centenary, which is to be celebrated in high festival by the University three years hence. The faculty will contribute its part to the celebration by the issuance of a series of semi-centennial publications now well planned and under preparation. The alumni of the University now number more than 10,000. Many of them have prospered greatly in this world's affairs. They admit no superiors in love and loyalty to their Alma Mater, and if the alumni of the University of Michigan can set their hands to the task of raising a million dollars toward a Student Union

for their Alma Mater, our alumni will not fail in a like undertaking.

The Problem of Dormitories Dormitories for freshmen and sophomores represent another need of the inner life of the University. Endeavor has been made to improve the situation by making periodical inspections of boarding houses in Berkeley and by issuing a list of boarding and lodging places approved as attaining a certain standard. Statistics recently compiled, however, by Professor T. M. Putnam, Dean of the Lower Division, show that only 9.28 per cent of all the men students live in such approved boarding and lodging places, as compared with 32.52 per cent of the men students not living with parents, or relatives, nor at fraternities. Of 3190 at the University in November, 1915, a total of 910 lived elsewhere than with parents or relatives or at fraternities and only 296 of these lived in places which were on the approved list. University dormitories, if fire-proof in construction and of proper standards, and if a properly moderate scale of prices be charged, do not return an income that would be regarded as adequate from the point of view of investment alone. The freshman halls at Harvard cost \$1,570,857, including \$32,425 for furnishings but not including the cost of the land. These Harvard freshman halls accommodate 487 men. Their gross income for 1914-15 was only 5 per cent of the investment in the buildings alone, exclusive of the land. At Chicago, the dormitories have averaged \$1500 per student occupant in cost, not including the cost of land, and the income has averaged about 4 per cent net on the cost of the building.

Dormitories, however, would prove extremely useful to the University in providing wholesome surroundings for newcomers during their first year or so at the University. An excellent situation for student dormitories would be the University frontage along Allston way and Oxford street, where such buildings might stand as a threshold to the campus.

University Hospital and Medical School During the year work was begun on the erection of the new University Hospital, provided through the generosity of various friends of the University in subscribing \$615,750 for this purpose. With the

completion of this new building in the autumn of 1916 funds must be found for the equipment of the Hospital at a cost of approximately \$100,000, and the maintenance cost of the University Hospital will rise from approximately \$100,000 to \$150,000 per annum.

The University expended upon medical instruction during the year 1914-15 the sum of \$162,221. This included \$74,876 as the cost of maintaining the University Hospital, over and above its receipts, which were \$36,530, the total expenditure of the Hospital having been \$111,402. The expenditure for medical instruction proper was, therefore, \$87,345. All these figures are entirely exclusive of the expenditure of \$50,000 per annum on the Hooper Foundation for Medical Research.

It has come to be well understood that no medical school can offer the instruction demanded of it by the times except through salaried professors who give their chief time and strength to the University to the same degree that it is true of all other professors in the collegiate departments of the University. For a number of years past the instruction in the fundamental medical sciences, namely, Anatomy, Physiology, Pathology and Bacteriology, has been established on this academic basis, and, within the last two years, Pediatrics as well as Obstetrics and Gynecology have, also, been placed on an academic basis. Medicine and Surgery may well be expected to follow. A new Department of Bio-Chemistry and Pharmacology should be fully differentiated from the Department of Physiology. The instruction in the fundamental medical sciences, which is now given at Berkeley, must, within the next two years, be transferred to San Francisco and there, in immediate juxtaposition to the University Hospital, laboratories and teaching space for Anatomy, Pathology, Physiology and Bio-Chemistry must be provided. There also a Nurses' Home must be provided in order that the Nurses' Training School may have proper development. The Hospital, which is to be maintained strictly as a teaching Hospital, will require for its maintenance the income of not less than two million dollars. For all this advance we must look to private generosity.

**The College
of Dentistry**

The space now devoted to dentistry has become insufficient because of the increase in enrollment and the advance in the quality of work demanded by the department. The space now occupied by the College of Dentistry will be needed for medical laboratories. A new building especially planned for the growing needs of the College of Dentistry must be provided. A gratifying evidence of the quality of work being done in dentistry is the fact that, for the past four years, every graduate of the College who has presented himself for examination before the Board of Dental Examiners in any Pacific Coast State has successfully passed the licensing examinations.

**Hooper
Foundation
for Medical
Research**

The inauguration of the work of the Hooper Foundation for Medical Research has proved of vital stimulus to the whole work of medical education in the University. Director Whipple and the staff he has gathered around him are engaged in research work of fundamental importance having relation to various functional and infectious diseases. Their work is proceeding in co-operation with various members of the University faculty not officially connected with the staff of the Foundation and, during the coming year, opportunity will be provided for advanced students in the Medical School to have special instruction in research courses in medicine with members of the staff of the Foundation.

In other departments of the Medical School beside the Hooper Foundation there is much activity in research, as witnessed notably by the researches in typhoid, which are being carried on under the leadership of Dr. Frederick Parker Gay, Professor of Pathology, with the aid of a fellowship founded in memory of Dr. Edith J. Claypole, whose untimely death involved definite loss to the researches in immunology in which she had already won distinction. Further aid has been provided through funds granted by the Rockefeller Institute for Medical Research, and by the Hooper Foundation, and through the gift of Regent James K. Moffitt, '86. Dr. Gay and his associates have been continuing their studies of immunization against typhoid and

have shown gratifying results in the development of a new method for the treatment of typhoid by the use of a serum. By this method it has been found possible to abort typhoid in approximately 40 per cent of the cases in which the method has been used.

A propitious event of the year as regards the University of California Medical School was the fortunate union through which the Hahnemann Medical College of the Pacific conveys all its property to the University, ceases to provide the full separate course in medicine which it has given for many years, and makes provision for instruction in the University of California Medical School in homeopathic therapeutics and materia medica. Through this wise joining of effort, unnecessary duplications in the great body of the curriculum of the two schools have been avoided, and the hearty co-operation of the homeopathic medical profession of the Pacific Coast with the University, for the upbuilding in the University of California of the highest type of medical instruction, has been assured.

The establishment of a new degree of Graduate in Public Health signalizes a valuable contribution which the University is making to the community through the training of men for careers as sanitarians, either in the form of a graduate year in the Medical School, or by emphasis on sanitary engineering; or by special training in bacteriology and chemistry.

**Astronomical
Researches** As always, the researches of the Lick Observatory have continued to yield valuable contributions to science. From study of the nebulae, evidence has been obtained by Director W. W. Campbell suggesting that the Magellanic Clouds have no apparent connection with the stellar system of which we are a part, but are isolated cosmic units. One special need of the Lick Observatory is a great reflecting telescope of not less than a hundred inches to enlarge the scope of the Lick Observatory's investigation of fundamental problems in the structure and life history of the universe.

The Berkeley Astronomical Department, under direction of Professor A. O. Leuschner, has now practically completed its fif-

teen years of work in investigating the perturbations of the Watson Asteroids, and has continued to be a chief resource of the astronomical world for quick and accurate results in computations of precision for comets and other newly discovered bodies. The discovery made by Dr. S. B. Nicholson, Instructor in Practical Astronomy, while in residence at the Lick Observatory as Volunteer Assistant, of a ninth satellite of Jupiter, and his methods of observation and proof, have won commendation from the astronomers of the world.

The Scripps Institution for Biological Research The investigations which are being carried on at the Scripps Institution for Biological Research as to the why and wherefore of life and action in living beings are to be much aided by the additional equipment which is now being provided at a cost of approximately \$100,000, through the generosity of Miss Ellen B. Scripps. These new facilities will include a thousand-foot concrete pier, at which the Institution's collecting ship may dock, a salt-water pumping plant for an adequate supply of clear ocean water for the aquarium and the laboratories, an aquarium, and various other useful structures. The establishment of an annual Summer Assembly at which teachers of biology, investigators, and advanced students may have opportunity to acquaint themselves with the methods and the results of the Scripps Institution is a step forward planned for the summer of 1916.

The California Museum of Vertebrate Zoology is devoting special effort at present to a biological survey of the Yosemite National Park, with the intention of making publications which will unlock to the visitors to that Sierra wonderland the meaning of the animate life of its forests, canyons, and peaks.

With the notable increase of demand for instruction in Anthropology, the need becomes increasingly apparent for the erection of a first unit of a permanent fireproof museum building on the campus to house and to make available for general use the extraordinarily rich and significant collections in Anthropology which have come to the University through the wise munificence of Mrs. Hearst.

Growth of the Graduate School The most significant aspect of the growth of the University is the continued growth of the Graduate School, which for 1914-15 enrolled 832 students, or 17 per cent more than the preceding year, or an increase of nearly 100 per cent in five years. Of the graduate students, the men exceed the women by 16 per cent. Nearly half came from institutions other than the University of California. The candidates for the degree of Doctor of Philosophy number 81.

With the rise under special endowment of a number of University departments devoted wholly to research, with the great growth of the Graduate School, and with the increasing activity in scientific investigation of many departments of the University, strain and difficulty has arisen because of the lack of adequate funds for the issuance of University publications. The material situation has been improved by the erection of a new Printing Office, but additional equipment and additional funds for scientific publications are much needed.

Of all the research departments of the University, none is more active nor more creditable in performance than the Department of Agriculture. The annual report of Dean Thomas Forsyth Hunt, which is separately printed, devotes itself primarily to chronicling the results of achievement in agricultural research, and presents a most gratifying picture of results achieved of essential scientific value and interest, and of direct practical application to the problems of agriculture. Notable features of the growth of the College of Agriculture during the past year have been the completion of the organization of the Forestry Division, with a staff of two full professors, one associate professor, and three assistant professors, under the headship of Professor Walter Mulford; the return to the University of Professor Elwood Mead to head a new Division of Rural Institutions, and the organization of a new department of Agricultural Mechanics, under the headship of Professor J. B. Davidson.

Expansion of the College of Agriculture The growth of the College of Agriculture is illustrated by the fact that at last Commencement 79 degrees were conferred in Agriculture, as compared with two in 1900, and as compared with 40 the year when Dean Hunt came to the University, 1912. In addition, 36 certificates were given for the completion of the three-year course in Agriculture at the University Farm School.

There were three times as many students in the College of Agriculture in 1914-15 as there were six years earlier; that is, 599 in full University standing, not counting the 289 in the three-year course in the University Farm School. In the fall of 1914, just 169 freshmen began the four-year course in Agriculture at Berkeley, and 170 men, of an average age of twenty, the three-year course at the University Farm. That is, 339 students of college age began the study of Agriculture in the autumn of 1914 under the auspices of the University, not counting the 186 enrolled in the Short Courses at the University Farm. The enrollment for correspondence instruction in Agriculture had reached a total of 18,347 by last June, which represented every county in California, forty-two other states, and a great number of foreign countries. Through the leadership of the University, Agriculture is now taught in sixty-four California high schools, in fifty-six cases by teachers who have had farm experience ranging from one to over twenty-five years, and in thirty-one cases by graduates of agricultural colleges. Not the least valuable part of the University's teaching of Agriculture is the work of the Farm Advisors in thirteen California counties, and the work of the Boys' Agricultural Clubs, which have been organized by the University in sixty-five California high schools.

With the erection in the near future of a laboratory and office buildings on the site of 471 acres purchased by the State at Riverside, for the Citrus Experiment Station and Graduate School of Tropical Agriculture, an important step forward has been taken in the development of an institution for research in

Agriculture which promises illimitable possibilities in the way of service to the development of California agriculture.

Training

Teachers in

the University

High School

The establishment of the University High School in Oakland, under the immediate direction of the University through the financial co-operation of the City of Oakland, has furnished opportunity for a valuable development of the University's work in the training of teachers. California sets a higher standard than any other American State for the high school teacher's certificate, since it is almost the only state that requires a year of graduate work for a certificate in secondary teaching. More adequate provision is needed for the training of teachers of vocational subjects, a field in which there is increasing demand and in which the University should not relinquish the opportunity of wise leadership.

The generous activity of the Order of the Native Sons of the Golden West in maintaining fellowships at the University and travelling fellowships as well in Pacific Coast History has now resulted in still another step forward, for, largely through the initiative of the Native Sons, the State of California has created a State Historical Survey Commission, and a survey has been undertaken of the materials for history in the State, county, municipal, church, federal, and personal archives throughout California. The headquarters of the work, which is under the direction of Mr. Owen C. Coy, as Secretary and Archivist, has been established at the University. It is hoped that this beginning will develop into an undertaking of great importance to the right understanding of American history.

The Department of Palaeontology is unflaggingly active in its discoveries as to the past history of life. The past year has seen especially valuable work in the linking up, through discoveries in the Tehachapi region, of chapters of past geological history which have to do with the Great Basin and with the vast region to the west thereof. With a collection of approximately two million specimens now stored in Bacon Hall, a building with wooden floors and frame, the need of a fireproof habitation for the Department is strongly felt.

**Outdoor Work
in Physical
Education**

Nowadays most of the University gymnasium work is done out of doors, instead of indoors, through the plan of permitting all the men who come up to a certain standard of physical excellence to participate in any one of a great number of different outdoor sports, organized and conducted under the leadership of the Department of Physical Education. Those men who find themselves inferior to the physical standard set as a norm prove most willing to follow the gymnasium work recommended to them as a means of improving their own physical standards and making them fit for admission to the privileges of the "Sports Division."

The work in Physical Education for Women has been greatly aided by the completion of the new Women's Swimming Pool, toward whose cost Mrs. Hearst had generously contributed, and by the completion of additions to Hearst Hall and the enclosure of athletic grounds where the women students may alternate gymnasium work with various outdoor sports.

The military instruction of the University, now come to be of definite and recognizable importance to the nation, as well as to the students, is handicapped in its work by lack of an armory. The present armory, in the basement of the Harmon Gymnasium, is barely large enough for the mere storing of the arms and equipment of the regiment.

**Growth of the
Infirmary —
New Dental
Clinic**

The physical welfare of the students is being increasingly well cared for by the Infirmary. It is to be noted that the large amount of surgical work done at the Infirmary by Dr. Legge and his staff during the past year resulted in 100 per cent of cures. Another interesting fact is that, through the new methods in vaccination which have been worked out by Professor Force, every vaccination given at the Infirmary resulted either in a successful vaccination, or in a well defined reaction of immunity. The uniqueness of our Infirmary system rests in its outright provision of shelter, food, nurse, medicine, and doctor's care in consideration of the semester fee of \$3. Medical care is furnished entirely by our own staff, all members of which are on salaries and receive no fees. This year we have extended the care for students' health

to the establishment of a dental clinic at the Infirmary, where students may have their teeth cared for at approximately two-fifths the cost of such work elsewhere. It has been found that if students were left to look out for their teeth themselves they would let matters drift until their attention was called to an unfavorable condition by toothache. The average student is not apt to have any surplus of, say, \$25 in his possession at any given time and he is likely, therefore, to fight shy of any undertaking which is likely to involve considerable cost at one time. This postponement, however, very commonly operates to the unsettling of health. Our experience with the dental clinic thus far is that its greatly reduced cost, its handiness at the Infirmary, and its assurance of sound treatment, encourage the student to act promptly in the matter. The fact that the clinic is connected with the Infirmary, furthermore, gives the University physicians opportunity to follow up a case in which they have suspected defective teeth to be the fundamental trouble. The Infirmary is serving its purpose in the clearest and soundest manner and is, every day, proving more and more clearly the righteousness of the fundamental principles on which it is operated.

Infirmary The next step forward may well follow upon
Privileges for the provision of additional space in the Infirmary,
the Faculty namely, the inauguration of Infirmary privileges
for members of the faculty and faculty families. The need of this is particularly felt by the younger members of the teaching force. The President has always hoped that the vacant lot to the north of the present Infirmary building would be ultimately occupied by a more permanent building for the use of the students, as provided by the will of the late E. V. Cowell, '80, and that the present building, for the time at least and until a second gift could be obtained, should be open to the use of the faculty. The present Infirmary is supported entirely by student fees. The question would arise, in the case of the faculty family, whether it should be so supported or whether provision could be made for its support out of public funds.

Re-Organization within the University The present year has seen the very considerable beginnings of the long deferred and much discussed reorganization of the inner University. Whatever changes are made must, of course, hold themselves within the territory unprovided for in the Charter and cannot seek to alter or ignore the provisions of that fundamental law. According to the Charter, the chief powers are lodged in the faculties of the different colleges, as, for instance, the power of recommending to the Regents for conferment of degrees in course and the power of punishment and the enforcement of discipline. The Senate is little more than an assemblage of the faculties of the colleges. It remains, however, the one body which represents the whole University.

With the increasing complication of courses of study, the boundaries between the colleges were becoming constantly more vague and uncertain. Especially had it come to be the case that students were assigned for graduation to this or that college more on a basis of what they studied in the high school than of what they had studied in the University; and, on the other hand, chose their college all too frequently rather on the basis of what studies they sought to avoid than of what they wanted to take.

With the beginning of this year, therefore, the three "colleges of general culture," Letters, Social Sciences and Natural Sciences, were consolidated into one new college, called the College of Letters and Science. The studies within this college lead all its students to the degree of Bachelor of Arts (A.B.). The question of the legality of the action seems to have obtained a final settlement in the opinion (printed in full on p. 211); of the Attorney of the Board of Regents.

For some years before this action regarding the general courses had been taken the Engineering Colleges, in recognition of the large common stock in their courses, had been drawing more closely together and had created, for conference and for legislation regarding common interests, the so-called Engineer-

ing Council. This Council had come to be recognized in law as a standing committee of the Senate.

Parallel to this there has now been created, as substantially the faculty of the new consolidated college, a Council of Letters and Science, and, for the College of Agriculture, a Council of Agriculture. Thus the three great natural divisions of the undergraduate University have been plainly recognized and made the basis of the first and fundamental grouping. Each of the three councils becomes a standing committee of the Senate,—as such, indeed, is its only real existence.

In addition to these councils, there exists, also, as a committee of the Senate, the University Council, representing, by delegates, all the colleges of the University, academic, technical and professional. It is its office to prepare legislation for the Senate, whether by initiation or by reference.

The Place of the Graduate School The next major difficulty in the progress of the reorganization has had to do with the place of the Graduate School in the general scheme. Evidently the councils, like the colleges and departments composing them, represent vertical sections of the University, i.e., their boundaries run up and down across the student classes. At right angles to these boundary lines there run in horizontal stripes. Like the boundaries between the classes, the three following grand divisions of the student body:

(1) The Lower Division (i.e., the freshman and sophomore classes), represented by the Advisor, as Dean of the Lower Division.

(2) The Upper Division, in charge of the Dean of the Faculties.

(3) The Graduate Division. The extent of the domain of this uppermost horizontal division has not been, as yet, authoritatively and finally determined, but the direction in which the determination must be sought is reasonably apparent.

It is true that, in all American universities, the term “Graduate School” has simply arisen to represent what is in Germany the “Philosophische Facultät.” It does not include within its jurisdiction graduate students of the professional colleges, such

as law, medicine, etc., but is restricted to those courses leading to the degree of Ph.D. This degree is its emblem and symbol. Its place and standards were first determined in the American system by the requirements for this degree, school and degree alike being late comers and importations from abroad. Now that the technical and professional schools, however, have come to occupy a permanent place in the graduate area, the reason for the restriction has ceased to be, and the horizontal stripe representing graduate study must stretch across the vertical sections of the technical and professional schools as well as of the others. Courses in medicine and engineering requiring graduate status have, evidently, common interests with like graduate courses in philosophy and physiology, notably, for instance, in the determination of what constitutes graduate status. One and the same University cannot well maintain two or more different standards in this regard. It is apparent that, sooner or later, this barrier arising between the two sorts of graduate status must be broken down and all the different upright sections of the work done by graduates must be brought within the purview of the graduate division. We seem to be ready now to take that step in spite of certain difficulties, mainly difficulties of conflicting jurisdiction.

Characteristic of the need of the times is the demand for a vertical grouping known as the "school." Such is, for instance, the School of Architecture, of Education, of Medicine, of Commerce. The school represents a group, or curriculum, of special studies leading to the higher degree, which, beginning at the earliest with the junior year when the elementary and fundamental subjects of study have been passed, extends upward for one, two, or three years beyond the bachelor's degree into the graduate career. The actual facts of present-day demand for professional training,—and not any *a priore* consideration of what well might theoretically be, have made this differentiation of school from college a frank necessity. It is a demand for an entity, which shall administer a certain orderly curriculum in preparation for a certain professional career.

**State-wide
Response to
University
Extension
Efforts**

The response throughout the whole State to the educational opportunities now made broadly available through the work of the University Extension Division has been agreeably great. Correspondence students have greatly increased in numbers, as shown in the earlier portion of this report, and those who have had to do with such teaching are well convinced that the quality of work accomplished is good and that real seriousness and industry on the part of the students are involved. The work in University Extension inaugurated for the education of prisoners at San Quentin through classes, including correspondence courses, is now to be taken over at the expense of the prison itself and placed under an Educational Director. No better proof than this could be afforded of the value of that most unusual work undertaken by the University at the prison. A new development in University Extension is the Bureau of Visual Instruction, through which motion picture films, stereopticon slides and other materials for visual instruction, will be made available for public use in connection with schools and lecture bureaus. It remains to be seen how serviceable this plan will prove. Except as it develops into large proportions, it cannot be conducted economically, indeed, this is the case with the entire system of University Extension. Experience has shown that there are a certain number of people here and there in the State who had supposed that the State appropriation of \$20,000 would enable the University to give absolutely free instruction to everybody in the State who might desire it. The \$20,000 serves to initiate the clerical equipment of the department, i.e., to make the instruction available. If nothing but this appropriation were available for the support of instruction, University Extension would be kept within pitifully narrow limits and could reach only a few hundred people. The charging of a small fee, when economically administered, provides the approximate cost of instruction, and as the volume of the instruction grows enables us to turn the amount over and over in multiplying increase of opportunity as well as use.

**Growth of
the Summer
Session**

With the withdrawal from the Deanship of Professor C. H. Rieber, after the most successful of all the summer sessions that he has so wisely and usefully administered, it is interesting to note that the attendance has grown from 1981 in 1911, the first year when he served as Dean of the Summer Session, to 5364 for the summer session of 1915. Forty per cent of those in attendance were from outside California. There were only two American states which were not represented and there were students enrolled from seventeen different foreign countries. The demand for graduate instruction in the summer session is continually increasing.

**The Status of
Student Self-
Government**

Since November, 1899, when a case of student discipline was first referred, by the President, for counsel and advice to an informally constituted committee of the Senior Class, our system of student self-government has been steadily growing in range and effectiveness, and in the confidence felt toward it on the part of the student body. During all this time no formal agreements or contracts have been entered into as between faculty and students and no attempt has been made to give the system legal validity of any sort. The Undergraduate Student Affairs Committee, through which the system operates, has been treated and considered rather as a household tribunal than as a court. Its inquiries and its findings have not been given any legal form. No one has been put under oath. The sole effort has been to find out as directly and frankly as possible what the real facts were, relying entirely upon student honor as between man and man. And, to the credit of the system, it may be unhesitatingly said that in all of the various cases which, in the sixteen years, have come before it there has rarely been one in which the substantial facts were not laid clearly bare by the investigation. Very seldom has there been any case in which the defendant has refused to co-operate in finding out or revealing the facts, or has sought to hinder the inquiry by concealment, except for a natural inclination to place a favorable interpretation upon the conceded facts of his own conduct. It is, perhaps, to be said in reflection upon the mass of the cases that the committee has, on the whole, shown itself to

be a mechanism better adapted to discovering and determining all the facts than to devising a form of punishment suited to the offense committed. After a man has shown himself ready to co-operate in determining the exact character of the facts in respect to which he is an offender, and has once and for all recognized the full extent to which he is an offender, the matter of punishment becomes a thing of secondary importance and interest. Punishments have most usually taken the form of a recommendation to the President that the offender be reprimanded by the President, or that he be deprived of credit in the course in connection with which the offense, as, for instance, dishonesty in examination, has been committed, or that he be placed on probation for a term of a year, this latter punishment involving the unpleasant incident of having the fact of this probation noted on the student's record card. The reprimand from the President is probably not generally regarded by the student as an eminently agreeable form of social intercourse, although it has usually taken the turn of a friendly talk of some length about what is worth while in the world and has given the President, for his part, a reasonably appreciated opportunity. Recommendation of punishment by suspension or expulsion has been relatively rare.

Student It has, of course, always been understood that
Action and the legal authority in matters of discipline rested
Faculty Action with the faculty of the particular college in which the student was enrolled. So it is plainly provided in the Organic Act. In accordance therewith, it has always been the practice that the findings of the Student Committee in so far, at least, as they involved actual punishment, such as suspension, or cancelling of credit, should be referred to the disciplinary committee of the faculty for its approval or disapproval and, for ultimate confirmation, by the faculty of the college concerned.

As the meetings of such faculties were held in connection with the meetings of the Academic Council only two or three times in a term, the report of the committee usually covered the list of cases, described in briefest outline, indeed almost only by title. It has, indeed, been found that even this formality has

been omitted during most of the last two years. The findings of the Student Committee have been so universally accepted by the student community and the faculty that they appear to have obtained a standing of their own, independent of any support by faculty action. It should also be noted in this connection that it had always been the usage of the President to inform any student of action taken against him by the Student Committee and to inquire whether he accepted the decision. Cases forwarded to the Faculty Committee were practically all cases in which the student concerned had accepted the verdict. On this account, all the more was reference to the faculty coming to be a matter of formality.

An unusually trying and painful case of discipline occurring near the end of the academic year 1914-15 called attention to the necessity for a formulated and consistent procedure. It is evident that the student tribunal, in order to be genuine, must be left to its own spirit and devices and must not be, in any way, adulterated by the devices or the membership of a faculty element. It must be, outright, a student affair in its thinking and its doing, otherwise student self-government will be a farce. It will be faculty government disguised with a sweater.

It is evident, from our experience, that the President should always stand in intervention between the student action and the faculty action. The two forms of action represent a total difference of theory and point of view. These two forms must be kept distinct if student self-government is to be a reality.

In the case of discipline mentioned above, the accidental failure of the President to discuss with the accused, as was his wont, the charges brought against him before allowing the Faculty Committee to be notified advanced the case too hastily out of its phase as a matter of the household tribunal into its phase as a matter of punishment in accordance with formal law.

The President, on learning that the student accused does not accept as reasonable and fair the judgment of the Student Committee, will, in normal cases, be justified in asking the committee for a review before submitting the affair to the Faculty Committee. It is surely in the interest of a successful student

self-government that the faculty action should not come to be considered and felt as an action of a higher court to which the student has appealed. And yet it must always be the duty of the President, in asking the student whether he accepts the judgment of his fellow students, to inform him that he has, under the law, a right to a hearing before the Faculty Committee representing his college. It must, however, be understood that, in practice, the great mass of the judgments rendered by the Student Committee do not involve the assignment of any such definite punishments as would raise the legal questions of rights.

The operation of student self-government in this University has been of such far-reaching advantage to the order of the University community and, what is far more, to the attitude and spirit of the students themselves, that no pains must be spared to devise and recognize a procedure which will insure to the system workableness under the law and avoid any crippling of its freedom and full responsibility.

Respectfully submitted,

BENJ. IDE WHEELER,

President of the University.

SUMMARY OF DEPARTMENTAL REPORTS*

Agriculture.—Among the more striking features of the development of the Department of Agriculture during the year have been the creation of the Division of Rural Institutions and the Division of Agricultural Engineering, and the further organization of the Division of Forestry, the Division of Pomology and the Citrus Experiment Station. At a special meeting of the Regents held December 23, 1914, a new site for the Citrus Experiment Station and Graduate School of Tropical Agriculture was selected. The site contains 465.29 acres of land, about 250 acres of which are estimated to be capable of tillage, and is located about two and one-half miles southeast of the center of Riverside on the Box Springs Boulevard. The irrigation water for the land is provided by a well guaranteed to produce 120 inches.

At the University Farm there have been several distinct additions to the material equipment, notably a class room building, costing \$65,000 and containing, in addition to offices and class rooms, the library and an auditorium with a seating capacity of 550 persons. The Dining Hall addition and Dormitory No. 3 have been finished and occupied. The Beef Barn has been completed. An inexpensive shed with five corrals for sheep feeding experiments has been constructed. A tool shed 28 feet by 100 feet is in process of construction by the students in building construction. An equipment of desks with drawers and lockers for laboratory work in soils has been installed on the second floor of the Horticulture Building.

Perhaps the activity which has touched the people in the closest and most effective manner has been the instruction in agriculture by correspondence. During the twelve months ending April 30, 1915, 9,198 students were enrolled. This makes the total registration to that date 15,622 different individuals. Of these 2,832 have completed one or more courses, the total number of courses completed being 3,880.

The following eleven counties have organized farm bureaus: Alameda, Glenn, Humboldt, Kern, Madera, Napa, San Diego, San Joaquin, Solano,

* For report of Departments of Anatomy, Pathology, and Physiology see pp. 165-167 in the Report of the Medical School beginning on p. 161.

Ventura, and Yolo. In each of these counties the University maintains an adviser for the members of the bureau and any other farmers of the county who may wish to seek his counsel. New as this enterprise is, there is evidence that it is performing satisfactorily the functions contemplated in the Smith-Lever Act.

Agricultural clubs are established in sixty-five high schools of the state. Last year thirty-seven clubs with six or more boys completed a growing contest and of these twenty clubs locally raised the funds and sent their prize-winner, under the guidance of the University, on a trans-continental tour of 9,000 miles, visiting 24 states, Canada and Mexico, stopping at 24 cities and seeing twelve of the most prominent types of farming in America. At the same time 147 other boys who had done good work in the clubs were sent by their home communities on a three-day trip to the University Farm and the University at Berkeley.

Seventy-three bachelor's degrees and six master's degrees were given to students of the College of Agriculture, while thirty-six certificates were given to students completing the three-year course in agriculture at the University Farm School. The University students in Agriculture have increased in two years from 490 to 599, while the Farm School students have increased from 157 to 289. In the first instance the increase was 109 and in the second instance 132. It is also interesting to note that 169 freshmen in agriculture entered at Berkeley while 170 first-year students, with an average age of 20 years and one month, entered the Farm School at Davis. In other words, 339 students of college age entered the University of California last fall to study agriculture. The students of the Farmers' Short Courses numbered 186 and averaged about 25 years of age. If this number be included, then 525 new students entered the University this year to study agriculture.

There has been no material increase in individuals taking the Farmers' Short Courses during the two years, although on account of lengthening these courses a considerable increase in work has occurred. Nevertheless the attendance upon them has not been equal to the opportunities offered. The instruction has been carefully planned, is given by leading men of the department and deserves to be attended by larger numbers of the farmers of California.

The Junior certificate has been relinquished in the College of Agriculture, thus making it possible to provide a more logical sequence of studies and to meet the individual needs of students without in any way reducing the requirements for graduation. The year has been rather notable for the amount of student activities and for the growing recognition of the entity of the college as a part of the general student life of the University.

The Annual Report of the Director, which is printed separately, deals this year principally with the results of current investigations. About 80 such topics are treated in the Report, stating in each case briefly the nature of the achievement and its relation to the industry involved. It also gives list of 148 projects upon which data has been obtained during the year.

There have been published 12 bulletins and 13 circulars, of which 400,000 copies in the aggregate have been distributed. In addition members of the staff have prepared and published 94 scientific or technical papers in other publications.

Bull. 245. Commercial Fertilizers. J. S. Burd	18,000
Bull. 246. Vine Pruning in California, Part II. F. T. Bioletti	20,000
Bull. 247. Some Measuring Devices used in the Delivery of Irrigation Water. Calif. Agents of Irr. Investigations Office of Experiment Sta- tions, U. S. Dept. Agr.	20,000
Bull. 248. The Economic Value of Pacific Coast Kelps. J. S. Burd	20,000
Bull. 249. Stock Poisoning Plants of California. H. M. Hall and H. S. Yates	25,000
Bull. 250. The Loquat. I. J. Condit	25,000
Bull. 251. The Utilization of the Nitrogen in Septic and Imhoff Tank Sludges. C. B. Lipman and P. S. Burgess	30,000
Bull. 252. The Deterioration of Lumber. M. B. Pratt	30,000
Bull. 253. Irrigation and Soil Conditions in the Sierra Nevada Foothills, California. R. D. Robertson and J. W. Nelson	30,000
Bull. 254. The Avocado. I. J. Condit and M. E. Jaffa	25,000
Bull. 255. The Citricola Scale. H. J. Quayle	25,000
Bull. 256. The Value of Barley for Cows Fed Alfalfa. G. H. True, F. W. Woll and E. C. Voorhies	25,000

CIRCULARS

Cir. 119. Winery Directions. F. T. Bioletti	3,000
Cir. 120. Potato Growing in the San Joaquin and Sacramento Deltas of Cali- fornia. W. V. Shear	5,000
Cir. 121. Some Things the Prospective Settler Should Know. Thomas Forsyth Hunt and other members of the Staff	40,000
Cir. 122. The Management of Strawberry Soils in the Pajaro Valley and its Problems. C. B. Lipman	5,000
Cir. 123. Fundamental Principles of Co-operation in Agriculture. G. Harold Powell	30,000
Cir. 124. Alfalfa Silage for Fattening Steers. G. H. True, F. W. Woll and V. F. Dolcini	30,000
Cir. 125. Aphids on Grain and Cantaloupes. C. W. Woodworth	7,000
Cir. 126. Spraying for the Grape Leaf-Hopper. H. J. Quayle	25,000
Cir. 127. House Fumigation. C. W. Woodworth	25,000
Cir. 128. Insecticide Formulas. C. W. Woodworth	20,000
Cir. 129. The Control of Citrus Insects. H. J. Quayle	30,000
Cir. 130. Spraying for Walnut Aphis. A. R. Tylor	25,000
Cir. 131. Cabbage Growing in California. S. S. Rogers	25,000
Cir. 132. When to Vaccinate against Hog Cholera. C. M. Haring	40,000

Anthropology.—During the past academic year the number of students enrolled in the various departmental courses was about 500 more than in any year heretofore. This increase was felt most keenly in the introductory course in anthropology, which has now grown to a point where it requires the major part of the time of two instructors. Additional work in the Museum has developed this branch of the activities of the department of anthropology to the limit of the present building's exhibition capacity. There are now eleven unit collections open to the inspection of the public, as compared with six such units when the Museum was formally opened on October 4, 1911. The civilizations represented by these eleven exhibits range from ancient Egypt to the Indians of California, and from the Incas of Peru to the Pacific Islanders. The lecture system at the Museum is now well established in usefulness and popular favor, thanks to the efficient efforts of Assistant Curator Gifford. During the first ten months of the past year 124 lectures were delivered at the Museum, 106 of them by Mr. Gifford; 7373 pupils from nearby schools listened during the year to such lectures.

Architecture.—During the past year the work of the department of architecture has continued to increase, making necessary the early consideration of the problem of the accommodation of students. The alternative now faced by the department is limitation on the number of students in various courses. Professor Howard for the department states that additional teaching force is needed if the students are to be handled to the best advantage.

During the year upwards of 8,000 visitors have inspected the work of the students and visited the building. The lecture room in the Architecture Building still lacks suitable seats and the exhibition hall a proper finish. The department states the need of a fund for the purchase of drawings, casts, books, etc., in order that its equipment may compare favorably with other architectural schools. The department library, the generous gift of Mrs. Hearst and now rapidly increasing, needs additional space for housing and safeguards against fire. Professor Howard also advocates the establishment of a class in life drawing, open to architecture students.

Astronomy.—No important changes have occurred either in the staff or the equipment. A Riefler Standard clock was ordered in 1913 and was received about a year later in July, 1914. For lack of a proper clock vault, the clock has not been set up, but as it will be imperatively needed in connection with advanced instruction in practical astronomy and as an accessory in the regulation of the clock to be installed in the Sather Campanile, the department must undertake to house the clock temporarily in the basement of one of the domes. The clock was acquired at a cost

of nearly \$800 and should be protected as much as possible from the dampness incident to the Berkeley fogs by being housed in a special vault.

As heretofore, the department has taken a leading position in providing the astronomical world with computations of precision, in particular in furnishing the computations necessary in the case of newly discovered bodies, particularly comets. Investigation of the perturbations of the Watson Asteroids was practically completed during the past academic year with the assistance of Miss Sophia H. Levy. This work has been in progress for fifteen years and the results are highly satisfactory.

In July, 1914, Mr. S. B. Nicholson, as instructor in practical astronomy, made a most remarkable discovery in finding a ninth satellite of Jupiter, while temporarily in residence at the Lick Observatory, as volunteer assistant. In addition to the discovery, Mr. Nicholson has made all of the observations and intricate calculations of the orbit of this body. His work has received the highest praise from the scientific world.

Professor Leuschner was awarded the Watson Gold Medal by the National Academy of Sciences and has been elected a member of the Washington Academy of Sciences.

Botany.*—The increasing enrollment, due in part to certain requirements established by the College of Agriculture and in part to the increasing recognition of the value of botanical knowledge, has put additional burdens upon the teaching force. It has, however, met these increased demands with loyalty and efficiency. The situation as it now presents itself shows clearly the need of additional assistance and room. In research work the department staff has made contributions to the present store of botanical knowledge, Professor Setchell bringing to a conclusion his studies on an important group of algae, Professor Jepson continuing his work on "The Flora of California," Professor Gardner preparing a systematic revision of the Pacific Coast kelps, and Dr. Goodspeed attacking certain problems in genetics. Mr. and Mrs. Brandegee worked continuously upon various plant problems. Professor Hall has been revising for publication the results of previous studies.

The University herbarium continues to grow both in size and usefulness, about 2500 identifications and notes being supplied each year to correspondents. The herbarium, however, in company with the department, has suffered from the increased demands upon it and needs additional room and support.

* A list of gifts presented to the Department of Botany, its Garden, Museum, and Herbarium will be found on pp. 277-281.

Celtic.—During the past year the Department of Celtic continued to carry on its small but interesting part in the life of the University. In the number of students taking its courses there was a large relative increase, the total number rising from four to fourteen. Two new courses were added, both of which were given for the first time in the University. One of these dealt with the Anglo-Celtic poets and their important contribution to English literature. The other was a graduate course in Old and Middle Irish, the language vitally important in the study of comparative philology. The courses in Modern Irish were continued as in the previous year.

Chemistry.—The new building constructed for the use of the course 1A-1B has proved to be extremely well adapted to the needs of the elementary work in chemistry. The division of this large course into independent sections, although a severe tax upon the teaching force, has been justified by the obviously increased efficiency of instruction. The severe requirements of hard work and close thinking have not diminished the registration in this course. The removal of the freshman work from the old building has permitted the extension of the laboratories used for the rapidly growing courses in organic chemistry. Special laboratories have been equipped for the new courses in advanced inorganic chemistry and technical electrochemistry, and it is hoped that suitable permanent quarters can be established for the work in gas and fuel analysis. The courses in physical chemistry will also be moved into the old building in order that the chemical annex may be devoted entirely to the research work in physical and inorganic chemistry, which has grown beyond all expectations. Men who are to devote themselves to the profession of chemistry, whether in academic or industrial positions, feel more and more the desirability of adding to their training by one or more years of graduate study. That the department is becoming known through its publications is illustrated by the fact that over 150 men from other institutions have this year made application for places in the laboratory. Several professors of chemistry in other institutions have desired and have been encouraged to enter the laboratory for the purpose of carrying out scientific investigation, sometimes only for the summer months. The laboratories are much used for research throughout the vacation. This year for the first time two graduate seminars in chemistry are to be given during the summer session. Notwithstanding its heavy responsibilities in undergraduate instruction, the department regards the training of men in research as the most important of its functions.

Civil Engineering.*—The thirteen sub-groups of civil engineering instruction now stand as follows: Structural and architectural; railroads

* A list of gifts presented to the Department of Civil Engineering during the year will be found on p. 281.

and economics; surveying, geodesy and drafting; Summer School of Surveying; sanitary and municipal; highway engineering; irrigation engineering; sanitary courses for architects, domestic science and home economics (e.g., plumbing, ventilation, and lighting of buildings); hydraulic laboratories for sanitary and irrigation engineering; testing laboratory—student instruction; experiment station and research laboratory—testing of materials; machine department—constructing University apparatus; thesis work. The civil engineering department now devotes more than 52 per cent of its energies to students who are to receive degrees from colleges other than civil engineering, thus increasing the responsibilities of the department, which are not to be judged in the light of the number of the college of civil engineering. These broad services result from increasing the responsibilities of the department in the various branches named above.

Professor Derleth states that profit would come from the closer relation between the department of irrigation and civil engineering, through housing in the same building and in general closer co-ordination in work, now hindered by separate buildings and heavy work of each department. Professor Derleth renews his plea for the occupancy by the civil engineering department of the anatomy and University Press buildings. To house the department in these buildings would alleviate considerably the present embarrassment resulting from insufficient drafting and drawing space.

Drawing.—The merging of domestic art with the department has advanced the enrollment beyond the thousand mark and makes it necessary that additional laboratory room be provided. The one room set aside for the special work of Miss Patterson's classes proves to be inadequate.

The department has co-operated with the Extension Division with increased effort and it has now come to a point where it may hope for additional help. In addition to the popular lectures given by one instructor, there are being conducted five correspondence courses in which are enrolled more than one hundred students.

Economics.—The chief feature of the past year in the work of the department of economics was the unprecedented and unanticipated increase in the enrollment of students. The beginners' course opened with an enrollment of 565 students, as against 420 the year before and 240 two years before. The same proportionate increase occurred in the higher courses.

This increase necessitated increased hours of instruction for every member of the department, and led to an extensive reorganization of the methods of control over the work of students. Thus in the beginners' course the lectures were repeated each day, being given to one division

in the forenoon and to another in the afternoon. Additional drill sections were organized and each member of the department took charge of at least one section over and above the sections in charge of the regular drillmasters. The experiment of having the older members of the department take part in the drillwork has been remarkably successful. Their participation gives tone to the whole work. Uniformity of instruction was attained by weekly conferences at which the points to be emphasized were agreed upon. It is felt that this arrangement has solved, to a large degree, the difficult problem of handling large numbers of students in one course.

During the first half-year the department was strengthened by the presence of Professor Bonn of the University of Munich, by whose ripe scholarship and wide experience the students benefited greatly.

Professor Bonn's presence, the coming of Professors Cross and Brooks, the return of Professor Parker to full work in the second half-year, the continued help of Messrs. Forbes and Michelbacher and the assistance of Mr. Sinsheimer of the California Railroad Commission enabled us to restore the full curriculum by offering courses which had been temporarily suspended the previous year and to expand along lines in which there was a known demand. Especially gratifying was the restoration in full of the courses in insurance and actuarial science; in money and banking; in labor problems, and in economic history, and also the increase in the practical business courses. A course in agricultural economies which had been suspended for many years was restored and the need for it shown by a large attendance.

During the year a course in stenography and typewriting has been established and placed temporarily in charge of this department. This course is supported by fees and promises to be self-sustaining in the near future.

In connection with the general reorganization of the courses of study and of degrees in the University, plans have been matured for substituting a School of Commerce for the College of Commerce. The school is planned with three years of study after the attainment of the junior certificate. Experience has shown that two years is not sufficient time in which to cover the studies essential to a business career.

Education.—Professor Lange reports for the School of Education the well considered plans of the faculty in Education to organize the work in educational knowledge and in the training of teachers by adding to the faculty of the department of education those members of other departments who give teachers' courses, and a member from each department representing a secondary school subject. Professor Lange outlines the aims of the department and school in fixing proper standards for

teachers' certificates granted upon recommendation to the Committee on Higher Degrees. The introduction of new subjects in the high schools calls for close adjustment of the School of Education to the present-day needs for instruction in such branches as commerce, mechanical arts, domestic science, public health, play supervision, and music. It is the function of the department of education, in which the faculty of the school co-operates, to supervise the administration of the high school, now fortunately capable of use by those who are training to be teachers. In accordance with the regulations of the State Board of Education, California has the distinction of being the only state thus far requiring a year of graduate study for the state license to teach in public secondary schools. Such a license should presuppose breadth of culture, special scholarly proficiency, and professional training, which it is the purpose of the School of Education, so far as is possible, to encourage. Toward such encouragement definite plans in certain subjects have been worked out.

During the second term of the past year there were 362 persons enrolled in the School of Education. It is a noteworthy fact that an increasing number of university students elect courses in education for other than professional reasons. While this is so, however, the great majority of those who are taking courses in education are those who expect to pursue teaching as a profession. It is, therefore, worthy of pride that a professional spirit in education is in process of healthy growth within the University, notwithstanding the disadvantages of the lack of a separate building. Professor Lange advocates the conferment of a special degree in education, as recognizing the increasing amount of graduate work necessary in scholarly proficiency in the subject.

English.—The sophomore course in the history of English literature was this year given in a different manner. Formerly the class recited to the various instructors and was organized into sections for the course. This year the class as a whole met to hear lectures from Professors Armes and Sanford on the subject matter of the course; in addition, the students were assigned to various instructors and questioned on the assigned reading in preceptorial sections of fifteen each. Practically all the instructors in the department offered themselves as preceptors. Another important change has been the complete revision of the entrance requirements in English. This change has been made in accordance with a report made to the California Association of Teachers of English, by a committee of which Professor Wells was chairman. The features of the change are: a relatively greater emphasis put upon practical English, *i.e.*, oral and written composition; the reduction in the minimum of books required for study in preparation for college; the increase in the list of optional readings and alternative courses for the high schools, especially

in the third and fourth years. This report won the unanimous support of the Association and was adopted by the English department of the University. The new requirements go into effect with the coming academic year.

Geography.—The enrollment in the large freshman courses in geography last fall was nearly 300. Adequate laboratory and field work for such numbers will involve some extra assistance in order that the quality of instruction may develop the proper ratio of advanced students. The equipment in maps and globes will also need to be somewhat increased. Mr. W. G. Reed resigned as Instructor in Climatology after four years of careful and efficient management of the meteorological station.

While the practically fixed curricula for agricultural and engineering students have not yet been modified so as to prescribe a certain amount of training in gathering and the use of climatological data, there is a steady increase in the calls upon this department for such information.

Geology and Mineralogy.—The department has labored under certain disadvantages during the past year, incident to the disproportion between the size of the classes and the size of the rooms provided for the conduct of instruction, it being no longer possible to give the lectures in elementary geology in Bacon Hall. The space available in Bacon Hall is too small for the geological collections. In mineralogy the usual moderate additions to collections and apparatus have been made. The increasing attention given to advanced mineralogy by upperclass and graduate students is creating a necessity for an additional instructor in this branch. Petrography instruction has been helped by the presence of Mr. E. S. Larsen of the United States Geological Survey, who is Acting Associate Professor of this work, in Professor Louderback's absence. The seismological work in the department, in charge of Instructor Davis, has been carried on as usual. Professor Lawson recommends a station in Southern California for this work, preferably at the Scripps Institution at La Jolla.

German.—The general increase in the number of students in the University made itself felt particularly in the lower division German courses, where the sections swelled to a size which necessitated relief. It has been given by the appointment of a new assistant and a teaching fellow for next year. The establishment of a new intermediate course of six units, which follows the double elementary course of ten units, has raised the standard of the upper division courses, and will make it possible now to give them from the first a distinctly literary character, as against the purely linguistic courses of the lower division. The new arrangement brings about a more exact correspondence between the lower division and the work of the four years' course in the high school. There is a

rapid increase in the number of candidates for higher degrees; six candidates for the degree of Doctor of Philosophy in Germanic Philology are now in attendance. The enrollment for the year is as follows: lower division, 790; upper division, 420; graduate courses, first semester, 64; second semester, 88.

Greek.—During the past year Professor Clapp was absent from the University on Sabbatical leave and spent most of this time in England. His classroom duties were assumed by Walter H. Palmer, who had been appointed Instructor in Greek for one year. The enrollment in the courses in Greek exceeded that of the previous year by thirteen per cent.

Owing to the inability of Professor John Swinnerton Phillimore, of Glasgow University, to accept his appointment as Sather Professor of Classical Literature, Professor Henry Washington Prescott, of Chicago University, was invited to deliver the Sather lectures. Dr. Prescott conducted two courses during the second half-year, one a three-hour course on Greek and Roman Comedy, the other a two-hour course on the Classical Epic.

History.—Significant in the work of the history department was the initiation of definite instruction in California history by C. E. Chapman. His instruction aroused real interest in local history, which was manifested by the passage of a bill through the Legislature providing for a survey of local records. The initiation of this bill was largely due to the Order of the Native Sons of the Golden West, who have already done so much for the study of California history in the establishment of travelling fellowships. This bill has been signed by the Governor, and will permit work under its provisions at an early date by the three Commissioners to be appointed.

Graduate students in the department have increased in number, five Doctor of Philosophy degrees having been conferred at the last Commencement. Members of the department have spent much time during the past year in preparing for the Panama-Pacific Historical Congress, which included a special meeting of the American Historical Association, of which Professor H. Morse Stephens is President. Arrangements were made to bring to the Summer Session five eminent historians from the East, Professors Burr from Cornell, Farrand from Yale, Jameson from Washington, D. C., and Haskins and Turner from Harvard. The great need of the department continues to be for books, and Professor Stephens expresses the hope that something may be done during the next year to bring the Bancroft Library up to date for local history, and to provide more fully for the demands of the department in the various fields of European history.

Hygiene.—The course in general hygiene for freshmen men was given this year by a number of lecturers drawn for the most part from different departments of the University. A word of thanks is due these lecturers who in many instances were compelled to devote an entire morning in order to deliver a lecture to both sections of the class. In future years it would be wise to combine the two sections of this class and move to a larger auditorium, as was found necessary for the course in general hygiene for women.

The course in epidemiology had 274 students enrolled last semester and there is urgent need for section meetings in order to provide better instruction than is possible through lectures and mid-term examinations. The courses in sanitary surveys, domestic hygiene, and public health administration continue to grow. The course in public health administration properly belongs to the department of political science and could advantageously be given in that department as part of a course in local government.

In spite of an advance in the number of prerequisite courses the laboratory class in applied hygiene was larger than in any preceding year. This course could well be divided in order to give a laboratory training to prospective teachers of hygiene differing from the more advanced laboratory course intended for persons who propose to serve in public health laboratories.

In order to meet the needs of advanced students the lower division courses should be supplemented by a course in advanced hygiene and sanitation open only to students familiar with chemistry and bacteriology.

Graduate students during the past year have been at work on problems involving the deterioration of milk in relation to its transportation, the efficacy of cooking as a sterilizing process, and some statistical studies on intestinal diseases of children.

The museum of hygiene has been augmented by a gift from the Cutter Laboratory of thirty-six photographs illustrating methods of producing biological products.

During the past year the faculty adopted a course in public health leading to the degree of Graduate in Public Health, and at the 1915 Commencement this degree was conferred on five persons.

Irrigation.—Enrollment shows a satisfactory, continued increase, but, as usual, the majority of the students are drawn from the College of Civil Engineering and the College of Agriculture. It is, therefore, obvious that the Irrigation Department must offer courses primarily planned to meet the needs of these students. Fifty-five per cent of the students come from Civil Engineering and 35 per cent from Agriculture.

Members of the department have carried on valuable research which will shortly result in publication.

Attention is called to the fact that the University of California has attracted graduate students in irrigation from other colleges.

The department pressingly needs more room for offices and classes. Inasmuch as Agriculture Hall is already overtaxed, it has been necessary for the Irrigation Department to hold its classes largely in other buildings. The expansion of the Agriculture Department may make it desirable for irrigation to move its offices elsewhere and, when this condition arises, the department sees good reason for moving to the Civil Engineering Building, or to the adjoining so-called Anatomy Building in order that closer co-operation may be had with Civil Engineering and that greater convenience may result to the students. The desirability of a joint Sanitary and Irrigation laboratory is emphasized.

Jurisprudence.—Exchange of professors effected during the year 1914–1915 brought John Wurts, La Fayette S. Foster Professor of the English Common Law in Yale University, to our School of Jurisprudence. Professor Boke, meanwhile, took Professor Wurts' place in Yale. The exchange worked admirably. Professor Wurts' teaching ability won the enthusiastic appreciation of his students. Professor Barry Gilbert was forced by ill health to obtain leave of absence from January to July, 1915. Professor McMurray abandoned his Sabbatical year in January and resumed work in the School of Jurisprudence, taking Professor Gilbert's classes.

The Law Library fee of \$25 a year, authorized by the Board of Regents, was levied this year on all students registered in more than one professional course in the School of Jurisprudence. This, by resolution of the Regents, is devoted exclusively to the purchase of books. The fees resulting therefrom, together with about \$1100 interest from the Sather Law endowment, is beginning to give the University a fairly adequate law library. In May, 1915, all candidates for the J.D. degree were subjected to a general examination based upon the entire three years' work. The purpose of the examination, to test the ability of the student to correlate subjects studied, formulate general principles, ascertain with accuracy the statutes and decisions, and apply the whole to a solution of a concrete case. Of twenty-seven students who had been enrolled in the third year, twenty-two presented themselves for the examination. Twenty passed satisfactorily and received the degree of Juris Doctor.

Latin.—Enrollment in Latin classes has shown a marked increase in the past year. The number of students registered in the several classes has been 22 per cent greater than during the preceding year. The most

gratifying feature has been the distribution of this increase throughout the various courses in the Department. The increase in the Lower Division was 19 per cent, the Upper Division 28 per cent, and in the graduate courses 26 per cent. The course in Law Latin for freshmen has increased from 28 to 40 students. This branch of instruction enables freshmen to acquire control of juristic Latin and some fundamental conceptions of law. Some changes have been wrought in the system of courses in the Department whereby instruction in Livy and Plautus has been changed to the study of Catullus and Plautus; and a new major course in Livy has been established. Sight translation courses have been successfully continued with the object of reading Latin at sight and, in some measure, speaking it.

The Sather Professor for the year, Professor Prescott, of the University of Chicago, formerly a member of this Latin Department, gave courses in Epic and Dramatic poetry, with attention to the Latin representatives of this department of literature.

Mathematics.—Certain changes in personnel have come about during the past year, bringing Professor Brooks in Mathematics and Insurance, and, temporarily, Professor Dickson of the University of Chicago. Enrollment in classes has shown steady increase, enrollment for the first half-year being 1592, as compared with 1523 for the preceding year. Advanced courses have attracted a large share of this increase. The average enrollment in all classes was 33 and 31 for the first and second half-year, respectively. This means that many of the elementary courses were too large for the most effective teaching. It does not, however, seem possible to reduce the size of these classes until the University has more class rooms than at present or even more than it will have in the new class-room building. The Department considers itself fortunate in having an exceptionally efficient body of teachers to take care of the unusually large enrollment. Professor Haskell believes that Professor Dickson's visit points to the desirability of inviting distinguished professors from other institutions for a year, or half-year, at a time, either by exchange, or by independent appropriation. Summer session courses have grown rapidly, particularly in the graduate work.

Mechanical and Electrical Engineering.—To a large degree, the courses offered by this Department are restricted to particularly defined studies in the College of Mechanics. Beginning with the academic year, 1915-1916, the elementary courses in Mechanical and Electrical Engineering, Sophomore year, are prescribed for all students in the three Engineering Colleges, with the result that the number of students taking these courses will be increased two-fold. The number of students in the College of Mechanics during the academic year, 1914-1915, was 354, being 14 less than the enrollment for the previous year. There is an increase, how-

ever, in the number of students entering college in January, and there is cause for satisfaction in the fact that these students may now begin their work in Mathematics, Physics, Chemistry, Surveying, etc., in all of the Engineering Colleges in such a manner as to complete the requirements for the Bachelor's degree in four years. As time goes on, the Department finds itself more and more handicapped as a result of the limited space and equipment of shops, library, offices and laboratories.

The advanced undergraduate work and graduate work in the Department continues to develop important results. The most important research work done during the year had to do with the possible dispersion of fog by the use of very high voltage, high frequency discharges.

Military Science and Tactics.—The only change in the course of instruction in the Department was the addition of a new course, 3A, prescribed for instructors (cadet officers) of the Freshman section in elementary military science instruction. The work of the cadets has been satisfactory throughout the year, since the middle of March having been particularly efficient. While nine drill periods were lost because of rain, there was a marked effort on the part of almost all cadets to bring the work of the year up to standard in spite of the time thus lost. As a result of the Annual Inspection of May 4, 1914, the University was assigned a place on the War Department's list of "distinguished colleges" for the year 1914. Nine University Cadets attended the Students' Military camp at Pacific Grove in 1914. Their work, as officers, since then has been of increased value by reason of this experience. Major Nance says "it would be well if all cadets who elect to do upper division work in the Department could attend one of these camps." The number of students enrolled in the Department during the year was 1662. The maximum strength of the regiment was 1515 on September 7. The minimum strength was 1315 on April 29.

Mining.—During the past year the Department of Mining and Metallurgy was bereft of its chief Professor, Samuel B. Christy, who died at his home in Berkeley in December, 1914, and so closed a long and honorable career in the University's service. In his will he left his library of over 800 books to the Department. Professor Lawson, after Professor Christy's death, was appointed acting Dean of the College of Mining and acting head of the Department of Mining and Metallurgy. In the spring of 1915, Professor Durham resigned the Associate Professorship of Mining and Associate Professor Weeks was called in his place. During the second half year the temporary services of Professor C. E. van Barneveld were secured. Dr. van Barneveld gave a course of forty lectures to the mining students which was supplemented by brief courses of lectures on special topics by well-known mining engineers.

During the year the curriculum of the College of Mining has been so changed that students may proceed to the degree of B.S. by pursuing one of three co-ordinate lines of study in the last two years of the course, such three branches being Mining Engineering, Metallurgy and Economic Geology. A fourth course, it is hoped, will shortly be added in petroleum engineering.

One of the improvements during the year was the installation of the Departmental Library with the books of the late Dean Christy as a nucleus.

Music.—The Department of Music, during the past year, offered eighteen courses, totaling about 44 hours of instruction each week. In these were enrolled 1055 students in the second semester. Difficulties in seating such large classes involved transferring several classes to other buildings than the Music Building. Professor Seeger states that a need has been felt for increasing the scope of the present activity of the Department.

Oriental Languages.—Some change has taken place in the instruction of Chinese. Whereas heretofore emphasis was laid on Mandarin and lecture courses, now the study of the written language, modern and ancient, has been considerably increased. Especially Oriental students have availed themselves of these advanced courses. A new departure was made by the introduction of conversation lessons conducted by Mr. Kiang, who speaks the Peking Mandarin dialect. He likewise gave instruction in the writing of Chinese characters with brush and ink. A new course will be offered by Mr. Kiang in Chinese composition, useful for Chinese students desirous of improving their style. Major work was done by three students, two Americans and one Chinese. The lectures courses embrace the different branches of Oriental civilization.

Palaeontology.—In undergraduate work, distinct effort has been made during the past year to illuminate the lecture courses by more demonstration and excursion work. Division of the students into smaller groups will also be attempted in line with the policy of interesting individuals and becoming personally acquainted with the work of each. Storage room is still at a premium. Particularly is it needed for materials used in undergraduate work. Collections, through exchange and by our own field parties, have added greatly to the value of the museum materials; they need, however, proper mounting and display. About fifteen graduate students have been at work on many important problems in Pacific Coast palaeontology.

Professor Merriam points out that while we have at present perhaps more than two million specimens in the palaeontological collections, they are inconveniently housed in Bacon Hall and subjected to the danger of

fire. The most important acquisitions during the year were of a large collection of tertiary vertebrate fossils from the University of Munich, Germany. Other collections of importance have also been received and while the value of them is hard to compute, it would probably amount, in the last year, to more than twice the entire amount expended for field work in palaeontology in the last two years. Field work carried on by the department in connection with its research problems has been of a varied and interesting character and has yielded fruitful results. Perhaps the most significant discovery of the year was that of two new mammalian faunas near the summit of the Sierras at Tehachapi. It is the outcome of continued work for the past four years on a plan for research outlined in the annual report of the department for 1912. Professor Merriam states that attempts to unify the results of paleontologic work in western North America indicated then that the history of life, as also the geologic history, of the West is represented in two practically different volumes: one the history of the Great Basin province; the other, the history written in sediments deposited west of the Cascade Range. While the history east of the mountains is that of a semi-arid region, that west of the Sierras is found largely in deposits formed in the sea, and the fossil remains are those of marine animals. Four years ago the Department definitely attacked the problem of determining time relations between the sequences of events on these two provinces. A general survey of the field indicated two regions especially suited for investigation of this problem; one is the area of southern Washington; the other the region of the Tehachapi pass in California. While the northern region has been surveyed by the United States Government, remarkably little has been known of the Tehachapi area. Largely through the efforts of J. P. Buwalda, who obtained his Doctor's Degree in the department this year, an investigation of the Tehachapi region was undertaken and secured most valuable results through the discovery of two fossiliferous horizons containing mammalian remains which give us, with reasonable certainty, the age of these beds.

Philosophy.—As usual, there has been a considerable increase in the enrollment of the classes. Particularly this year have such increases shown themselves in the upper division. The lower division courses such as Logic, however, there has also been a swollen enrollment, the course in Logic alone attracting 600 students each term. The accommodations of the little Philosophy Building have been far outgrown. The Department states an urgent need for a new building. Increasing co-operation has taken place this year between the Department of Philosophy and other departments of the University. Courses in Ethics and Aesthetics have been largely attended by students in Economics and Political Science. The relation of Psychology to the other departments has been shown this year by a course in Advertising, supervised by Professor Brown,

the lectures for the most part having been given by men of experience from San Francisco, while special classes for experiment and instruction in the psychology of advertising have been conducted personally by Professor Brown. There has also been a community of work with the Department of Pediatrics of the Medical School of San Francisco in the field of child psychology.

The work of the Philosophical Union has been, as before, conducted with success. The topic of the year has been the Philosophy of the State and of International Relations, with a special celebration of the completion of twenty-five years of active life of the Union since its founding by Professor George H. Howison. The Annual Address was given by Professor Josiah Royce of Harvard University upon War and Insurance.

Physical Education for Men.—Professor Magee reports that, of the students registered in the Department of Physical Education for Men for the past year, 52 per cent elected out door work and 48 per cent indoor work. The use of the gymnasium for other classes, says Professor Magee, has interfered with its proper tenancy by the Department of Physical Education for Men.

Physical Education for Women.—During the first year of the separate existence of this Department, matters of construction and administration have necessarily had first attention. It is, however, the hope of the Department that it may, in future, be able to consider the particular needs of each student more carefully. In line with this policy, it points to the value of a longer period of prescribed gymnasium now indicated. During the first three weeks of the term, 714 intrants were examined physically. The Department aimed to give, at this examination, as much time as possible to personal conference, correction of deficiencies in carriage, feet, posture, etc. On the basis of such examinations, the student was assigned to work graded according to her needs. There were four groups, including students of marked efficiency, of average normal physical efficiency, of restricted efficiency, and finally, those who needed corrective work. The Department plans to offer a series of elective courses for which academic credit is given and such instruction has been offered in aesthetic dancing, gymnasium sports and team games. The attempt has been made by the Department to promote women's athletics in co-operation with student organizations. It is the department's opinion that the present system of conducting athletic activities for women could be made more desirable by carrying out, as far as possible, the following modifications.

1. Provision of coaches from the department or approved by the department for all sports.

2. Change in the method of awarding "C's" to women in order to

insure the giving of the letter to one who represents the highest ideals in at least two forms of sport.

3. Encouragement of inter-class contests and abolition of intercollegiate contests, except in tennis and fencing.

The Department further proposes a normal course to correct the absence of adequate physical education in primary and secondary schools and the management of athletics in high schools by untrained coaches.

The opening of the Hearst Swimming Pool marks an important step. The average daily attendance throughout the spring semester was 65. The completion of the Athletic Field and its equipment, the enlargement of the outdoor platform, the opening of the new tennis courts, the completion of the Hearst Hall addition and the opening of the Hearst Swimming Pool mark the year as a period of beneficial construction.

Physics.—The effort is being continued to secure assistants who are students of advanced physics and this attempt is meeting with success. Six public lectures were given by the Department during the year and attracted general interest. Professor Slate wishes to speak of the devoted and loyal service of Dr. T. S. Elston. An injury to his eyesight some years ago forced his retirement at the end of 1914-15 to the regret of his colleagues and students.

Political Science.—There is little to report from the Political Science Department. The number of students and the interest in the work has gone on steadily increasing. This is especially noticeable in the number of graduate students. At the last Commencement, seven persons received the Master's Degree with a major in Political Science. There were also a large number of applicants for the teacher's recommendation with a major in Political Science, ten in all. This seems to indicate a growing interest in the subject of Civics.

The faculty of the Department has continued to take a considerable interest in public affairs. Professor Reed was employed during the summer of 1914 in drafting a charter for the City of San Jose, which has since been adopted. During the Christmas holidays he made a survey of Santa Barbara, which has contributed to the adoption of a modern charter in that City. Professor Barrows has been especially active in the matter of Rural Credit legislation, one of the most important subjects to the American people today.

Romanic Languages.—The Department is attempting to get into closer touch with the work done in the schools of California. To this end, it has, with the co-operation of Stanford University, issued a pamphlet called "a Four Year's Course in French and Spanish." The pamphlet suggests to teachers of the Romanic Languages various methods for all the grades, texts, means of improving general results and the like. It is intended to print such a pamphlet from time to time. The newly insti-

tuted five-hour courses for beginners still remain a problem to be solved to the absolute satisfaction of students and teachers. Demanding, as they do, daily preparation, they are hampered by the crowded programme of the students. Such programme usually includes four or five other courses of two or three hours each. The lower division courses, however, can now be better controlled and harmonized, owing to a larger staff. The next step will be to make the upper division courses more efficient by introducing philological courses, dealing with syntax, phonetics and historical grammar, designed particularly for prospective teachers. The Department has also introduced a course in the nature of a Seminar to be made compulsory for all graduate students in Romanic Languages.

Semitic Languages.—The number of students in the Semitic Department increased during the past year; in the second semester there were about 20 registrations in the language courses offered by the department, and about 70 in the lecture courses. A new number of the "Publications in Semitic Philology," being the first edition of a portion (164 pages) of an Arabic Chronicle of Egyptian history in the fifteenth century, was issued in March.

Slavic Languages.—A slight increase in the enrollment of this Department is shown. Courses have been given during the past year in Elementary Russian, Advanced Russian, Elementary Bohemian and in Russian and Slavic Literature.

Zoology.—The number of students registering in the Department has increased to nearly 1100 from 1000 last year. The number of graduate students has been 45, 31 of whom are taking major work in Zoology, 13 of whom are candidates for the Doctorate. It is worthy of note that the Department has drawn its graduate students from all sections of the country. Of the 45, 14 come from east of the Mississippi. The increased registration in the elementary courses, Zoology I and 10, has severely taxed the capacity of the rooms in East Hall. To go to other buildings means a depreciation in the efficiency of the work. One of the greatest needs of the Department as stated by Professor Kofoid is an adequately equipped lecture hall to seat 350. He also states need for an advanced laboratory, teaching museum, several small rooms for graduate work and a culture house of greenhouse construction between Bacon Hall and East Hall. Expression is further given in the departmental report to the need for a larger instructing staff and for an increase in library facilities. The research work of the staff has made a decided advance in the past year. Experiments have been conducted by various faculty members in tissue culture, sharks and various problems of mammalian reproduction. The most important task has been the supervision of a Biological Survey of San Francisco Bay under the direction of Professor Kofoid. Publications in Zoology are being prepared dealing with the present research problems.

ALUMNI SECRETARY

BERKELEY, July 1, 1915.

To the President of the University,

SIR: I have the honor to submit herewith, my report, covering the period from July 1, 1914 to July 1, 1915.

The Alumni Association of University of California was organized for the purposes of fostering scientific and liberal culture on the Pacific coast, of prompting good-fellowship and kindly feeling among its members, and of advancing the interests of the University of California. With a view to effecting these purposes, a voluntary association has been continuously maintained since its organization in the early seventies. By virtue of the amended constitution adopted in 1896, all graduates of the university, regardless of department, are members. The business of the association is transacted through a governing body or council, consisting of five officers and ten councilmen. The constitution authorizes a representative from each of the professional departments of the university.

The two following points are significant of the comprehensive nature of the organization: (a) Membership in the organization is acquired by receipt of a degree from the university. This results in a division of its members into active and non-active groups hereinafter spoken of. (b) The membership of the association and the constituency of the board of directors present a symposium of the graduates of all departments of the university. These circumstances have the effect of bringing together on commencement day, at the annual alumni reunion, for the first time in their college careers, men and women from every department of the university—from the law school, the medical school, the dental and pharmacy departments, and from the several colleges of the academic department. This association is continued in all

alumni gatherings, and is an attractive feature particularly in the life at the alumni clubs.

The expenses of the association are met by dues of three classifications: annual, six-year, and life. Payment of dues, as has been explained, is not a prerequisite to membership. Necessarily, paying members constitute the real strength of the association, of which description there are at present some nineteen hundred. Such members are usually regarded as "active," in contrast to the larger or "non-active" class. One of the fundamental duties of the secretary is to increase the number of the former, and to reduce the number of the latter description of members.

In my opinion the secretary should be a permanent officer of the association, and one in intimate connection with the life of the university from the point of view of the faculty, administrative officers and students. He is the chief factor in instilling a continued interest in, and a regard for the university, on the part of the members of the association. He should be able to visit, organize and keep alive University of California Clubs in different parts of the state.

In working out the purpose of the association, the council has rightly developed certain policies of a permanent character. The annual meeting following the commencement exercises, has become a fixed custom; the secretary, like alumni secretaries in all the stronger alumni associations in American colleges, maintains a fairly accurate, but constantly changing list of graduates and their addresses; the secretary does something to assist the graduates in securing employment; he co-operates in the organization of local alumni clubs; he conducts a mass of correspondence with members of the association; and he manages and edits the California Alumni Weekly.

During the past year the alumni have done much for the University of California. At the annual meeting in May, 1914, President Chickering announced that a campaign would be launched to secure the necessary signatures to place on the November ballot through initiative proceedings a bond issue for one million eight hundred thousand dollars, for new and much needed

buildings on the university campus. Early in July this campaign was launched under the direction of the following committee of alumni: Charles H. Bentley, '91, Chairman, Allen S. Chickering, '98, President, Mrs. A. E. Graupner, '02, Farnham P. Griffiths, '06, Charles R. Detrick, '90, Ralph P. Merritt, '07, and K. C. Leebrick, '11. The committee received the enthusiastic and loyal support of the alumni all over the State. The campaign was entirely successful, and within the time specified by law, about forty-five thousand signatures to the initiative petition had been secured whereas only thirty-one thousand were necessary. The new campaign which was immediately organized to pass the measure soon became known throughout the State as the Campaign for "Number Eleven," which was the position of the proposition on the ballot, and the slogan "Vote for Number Eleven" became well known in every city in California. It is impossible to describe here the very earnest work, the self-sacrifice and loyal support that the entire alumni and student body gave to the University at this time. It would not be fair to give individual credit to even those who did most conspicuous work because of the large number of people who contributed their best efforts. The above committee, with the addition of Paul F. Cadman, student chairman, had charge of the Campaign which brought the bond issue before the people of California. The measure was passed at the November election with a sweeping majority of one hundred and seventy-five thousand, six hundred and eighty-eight. The law was an act authorizing the construction of the unfinished portion of the library, and of a building for general use as a recitation building, of a building for the use of the College of Agriculture, of a building for the use of the College of Natural Sciences as a Chemistry building upon the grounds of the University of California, at Berkeley. And it provided for the issuance and sale of state bonds to meet the cost of the foregoing purpose, and providing the necessary moneys for the payment of the principal and interest, to be and become due on said bonds.

In addition to this great assistance to the university, the alumni association launched another campaign in January, 1915,

which looked forward to the reunion in San Francisco and Berkeley, of all the graduates of the University of California on May 7th and 8th. The campaign was under the direction of the following alumni committee: Scott Hendricks, '14, David T. Babcock, '11, Emma M. McLaughlin, '02, Marguerite Ogden, '10, and W. S. Brann, '98. This committee was assisted by a large student committee which rendered invaluable assistance. The slogan, "Fifty classes back on California Days, May 7th and 8th," was adopted and arrangements were made for a general reception and for class banquets at the Panama-Pacific International Exposition on May 7th, and for a general alumni gathering, pilgrimage and carnival on the campus on May 8th. The efforts of those in charge were crowned with success and a truly remarkable reunion was participated in by about five thousand alumni who returned from all over the world for the occasion. At the general reception held in the California building at the Exposition on the afternoon of May 7th, fully thirty-five hundred alumni were present, and at the banquet which had been arranged by the Association of Class Secretaries for the various classes, and at the general banquet held in the evening of the same day, over four thousand of the alumni were gathered together. During the evening President Allen S. Chickering, Judge W. W. Morrow, Mr. Scott for the Exposition and the Secretary for the alumni association attended each banquet and spoke to those assembled. On the following day about five thousand alumni gathered on the campus to witness the interclass contests and other sports, and partook of a barbecue arranged by the students under the oaks near the football statue, and then joined in a class pilgrimage to the Greek Theatre where they were addressed by President B. I. Wheeler, Professor H. Morse Stephens and Judge W. W. Morrow. So interested was the audience that it remained throughout the entire programme, although it commenced to rain and it was necessary to conclude the programme in Harmon Gymnasium.

The regular meetings of the alumni were successfully held during the past year as heretofore, namely, the annual football dinner and the annual business meeting and luncheon. The annual football dinner was held in the Portola-Louvre cafe on

the evening preceding the intercollegiate football game with Stanford University. About four hundred and twenty-five alumni were present at this meeting presided over by President Chickering. Milton Schwartz, who was toastmaster, called upon prominent alumni and members of the faculty to address the men gathered on that occasion. The meeting was a decided success notwithstanding the fact that the Portola-Louvre cafe was not as satisfactory as the customary place, the Commercial Club, which was at that time being remodeled, and therefore not available.

Much of the credit for the success of this evening and of the alumni reunion "California Day" belongs to the Association of Class Secretaries, an organization which is composed of the secretaries of the various classes of whom the officers for the past year were, M. C. Lynch, '06, president, and K. C. Leebrick, '11, secretary. This association managed the football dinner, assisted greatly in securing the necessary signatures for the passing of the bond issue, and was perhaps more responsible than any other single factor for the results of the "California Day" special banquets held on the evening of May 7th, at which time forty out of fifty classes held banquets in San Francisco. This organization, though very young, forms the nucleus of a unit which if it continues to grow should do much to aid in alumni affairs, and keep members of the association in closer touch with their alma mater.

During the year three new University of California clubs have been formed. These are located at Stockton, Sonoma and at Honolulu. Of the other University of California clubs, the Los Angeles Alumni Association held a very enjoyable Charter Day reunion at which about one hundred and fifty were present. They were also of great assistance in passing "Number Eleven," and contributed considerable money toward the expenses of that campaign. The officers of the association for the coming year are, I. J. Muma, '00, President and A. M. Ellis, '99, Secretary. The Fresno association has held several successful meetings, and has taken an active part in the affairs of the University of California of that City. The Marin County alumni association

held their usual Charter Day Reunion with about one hundred and thirty present. President Wheeler and prominent older graduates addressed the meeting. The University of California Club of San Francisco has gone through a very difficult year, and just this past month the directors voted to close up their financial affairs and disband. They have given the autographed photographs and collections of University publications to the university in trust as a "University of California Club of San Francisco loan collection." I am sorry to say that the other University of California clubs in the State have not been very active although individual members have done everything that could be expected or desired for the university, and I wish to repeat that many of these local associations mentioned were of great service in the bond campaign, and in helping to make "California Day" a success.

The annual luncheon and business meeting held on Commencement day, May 13th, was this year held in Hearst Hall instead of the Faculty Club glade on account of the rain. About four hundred of the alumni were present. The annual business meeting and election was held at which the following officers were elected for the ensuing year: Oscar Sutro, '94, President, Albert W. Palmer, '00, First Vice-President, Clinton E. Miller, '00, Second Vice-President, R. G. Sproul, '13, Treasurer, K. C. Leebrick, '11, Secretary. Councillors: Robert Belcher, '00, Douglas Brookman, '10, Chaffee Hall, '10, Dr. Milton B. Lennon, '01, M. C. Lynch, '06, Marguerite Ogden, '10, Frank Otis, '73, Mrs. C. H. Parker, '07, Stuart L. Rawlings, '99, Dr. James G. Sharp, '93. After the business meeting the association was favored with talks from President Wheeler, President Chickering, Gardner F. Williams, '65, Dr. David Starr Jordan, President J. C. Branner of Stanford University, and Mr. Alfred Deakin. The last three mentioned had just been granted the honorary degree of LL.D. by the Regents of the University.

The Alumni Weekly during the past year has had a subscription list of about sixteen hundred. Through it the association has endeavored to keep the alumni informed regarding university and alumni affairs. The Weekly has been indispensable this past

year in carrying on the campaign for the bond issue, and informing the alumni of plans for the reunion. At the present time the Weekly is slightly in debt on account of the heavy expense incurred by the two campaigns, and the number of complimentary copies sent out to interest the alumni in the work being done by the association for the university. I am confident that this indebtedness will soon be wiped out by the new subscriptions that are coming in.

I feel that the alumni association has been of special service to the University of California and her alumni during the past year by passing the bond issue "Number Eleven" bringing the alumni back to the university for a very successful reunion, and constantly furnishing addresses and information to and about the alumni; by arranging the annual football dinner; the annual luncheon; and securing tickets to games and other student activities upon the campus.

Officers for the past year were: Allen L. Chickering, '98, President, Sayre MacNeil, '09, First Vice-President, Judge W. W. Morrow, LL.D., '13, Second Vice-President, R. G. Sproul, '13, Treasurer, K. C. Leebrick, '11, Secretary. The Councillors were: Robert Belcher, '00, Douglas Brookman, '10, Adolphus E. Graupner, '97, Chaffee E. Hall, '10, Dr. Milton B. Lennon, '01, M. C. Lynch, '06, Frank Otis, '73, Mrs. C. H. Parker, '07, William A. Powell, '02, Dr. James G. Sharp, '93, and Mrs. E. B. Stanwood, '99.

In conclusion I may state, that in my opinion the attitude of the graduates of the university towards their alma mater has greatly improved in the past few years. University loyalty is assuming characteristics of devotion comparable to religious faith or filial love. This is as it should be, and as the university grows and becomes more and more an institution, not only of higher but highest learning, this devotion will strengthen and ripen into an alumni spirit second to none.

Respectfully submitted,

K. C. LEEBRICK, '11,
Secretary.

APPOINTMENT SECRETARY

BERKELEY, July 1, 1915.

To the President of the University.

SIR: During the past year the work of the Appointment Secretary's Office has been somewhat simplified by the better response of the University to the state's demand for teachers with broader preparation. Yet, as predicted, this has been an altogether abnormal year. The attractions offered by the World's Exposition, the meeting of the National Education Association in Oakland, and the wide circulation of reports of the superiority of our school system, and the comparative advantage in the matter of salaries offered, conspired to bring to California this summer thousands of enterprising teachers, who are all eager to remain in the state. The competition has been so keen that our new recruits are finding great difficulty in being placed.

The demands upon the Office show no diminution, but many times in place of asking for the names of candidates, the Principal or Superintendent comes with a long list of applicants, and merely wants fuller information about their qualifications. As the numbers increase the responsibility of furnishing true estimates of ability and probable success grows formidable. We are constantly at work on new devices for securing complete and accurate information and filing it in a form which makes printer's ink do as much of the mechanical work of sorting into groups, and classifying for ready reference as possible. But teachers are not like pieces of merchandise, produced in quantities to fit the demand, warranted true to sample, and easily ticketed and disposed of, the consumer being duly warned of his risk. Until they are ready for the scrap heap, they are constantly growing

or changing for better or worse. The number of years of that much prized asset "experience" will not tell the superintendent what he wants to know, unless we know what the individual teacher has done with those years. Information gathered at one time may be quite useless at another, because it represents John Smith when he was a totally different person from what he is today. Witness the number of really excellent teachers who have survived a bad start. We have the record of many of them in this Office, and it would be manifestly unfair to produce the criticisms of their inexperienced days after they have outgrown them.

I mention this particular phase of the work, because the duties of an Appointment Secretary are little understood. Many people have the impression that they are purely clerical. As we understand them in this state they are very human. The problem is how to keep them so, when the number of candidates is so large as to tax beyond its limit one person's ability to receive and record impressions. We can not give out more than we take in, and our problem is to gauge the service the state demands of this Office, and then take counsel as to the best means of meeting it. If it is the business of a State University to foster the secondary schools, we should do it effectively.

Action taken by the recent Legislature places the responsibility for standardizing the requirements for the special teacher's certificate and the vocational teacher's certificate in the hands of the State Board of Education. It may be other means of training these teachers will be found, but so long as principals prefer teachers of special and vocational subjects who have had a college education, I doubt if a ruling that others may be employed will relieve the University of its responsibility. As the head of the state's system of free schools, it stands in a position of great strategic importance, and it has unconsciously yielded to the same influences that have resulted in the widening of the curriculum of the secondary schools. The Commissioner of Vocational Education frequently refers to it as the only real vocational school we have. Recently in checking up the list of subjects in which the State Board will probably grant vocational

certificates we were amazed to find how many of them are the a, b, c of what we teach in the technical schools of the University. He agreed that to illustrate processes we might use the men from the shops, but to give the principles behind the processes we should need graduates in engineering and commerce, agriculture, and architecture.

The University already offers most of the work that is needed to train an adequate supply of special and vocational teachers. Some changes in details of administration and a few additions would be necessary to meet this insistent demand. Can we turn our back upon it, when the money spent in training teachers for fields already overcrowded is largely wasted?

Respectfully submitted,

MAY L. CHENEY,
Appointment Secretary.

SAN FRANCISCO INSTITUTE OF ART

SAN FRANCISCO, July 1, 1915.

To the President of the University,

SIR: I have the honor to submit the following report of the San Francisco Art Association (San Francisco Institute of Art) for the year 1914-15.

The school records show a continuance of those activities which have made the Art Institute and its school departments so successful in the past years in furthering art purposes in the West.

Through the support of the members of the Art Association a number of exhibitions by prominent artists have been brought to the galleries of the Art Association during the past year. These, together with the paintings and sculpture pertaining to the collection belonging to the Art Association, have been maintained for the benefit of members, the students of the University, and the general public.

The following gives a list of special Exhibitions held during the year. Exhibition of Water Colors by American Artists, collected under the auspices of the American Federation of Arts; Exhibition of paintings by George Innes, N. A., from the Ainslee Collection of New York; Exhibition of Drawings and Paintings by American Illustrators; Exhibition of Paintings by George Bellows; Exhibition of Oil Paintings by American Artists, under the auspices of the American Federation of Arts; and the Annual Exhibition of the California School of Design. There was also exhibited in the galleries an exhibition of color prints in progressive steps illustrating the methods of producing color prints, and an exhibition of paintings by Japanese artists.

Several lectures were held in the Institute by the San Francisco Society of the Archaeological Institute of America and other societies.

Receptions were held on the opening of the Exhibition of Paintings by George Innes, N. A., and also at the Exhibition of work by the School of Design.

The School of Design is in session nine months in the year, this period being divided into two terms. The attendance of the school has been 316 for the last year. Eleven instructors were engaged during the year on the faculty. The high standard of work in the various departments was maintained during the year.

The school has prepared and exhibited work from its departments at the Panama-Pacific International Exposition, this work being placed in the Palace of Education. This exhibition, together with the work of the students in the school exhibit held at the end of the year, has been universally commended.

The Art Association grants annually twelve scholarships, as a reward of merit in the school and to assist young persons of merit who are unable to pay the required fees.

The school also by arrangement with the Julian Academy of Paris, awards, through an annual competition, a scholarship in that institute and a silver medal. The students of the school have again won more awards this year in the national competition for scholarships conducted by the Art Students League of New York. More awards were granted students of the School of Design than to the students of any other one art school.

The Normal Art Department of the school has been steadily enlarged and improved, the required course of study being increased from a term of two years to that of three years. A special feature of the year's development has been a course of concrete pottery, a process so simplifying pottery that the necessity of a kiln is eliminated. This makes possible the adding of pottery to any public school, inasmuch as the expense of such a course is minimized. A course of study in Interior Decoration has been added to the department of Decorative Design, and a class of modeling for men from the figure has been added to the Department of Sculpture. A department of Mural Painting has

been inaugurated and will be further developed during the coming year.

A Summer Session was conducted from June 21, to August 1, 1914 to enable students, teachers and craftsmen to secure a brief, comprehensive course of study, such as would be possible in a six weeks session. In this session the general subjects as conducted in the regular session of the school were presented, giving particular attention to teachers' needs in such subjects.

The Art Association is entirely dependent on its own resources. Its greatest need is to receive similar financial support to that received by other Art Institutes in the United States. No other art institute in the United States accomplishes so much with as little support from the outside.

Many worthy applications for scholarships have to be refused, inasmuch as the Art Association can grant but a limited number of such requests. Efforts will be made to interest those who desire to assist the development of art in this state, to create individual endowment funds, for the purpose of giving necessary instruction to talented young people who are unable financially to pay for their tuition.

In addition to the work outlined above, it is the custom of the Association to assist by direct information and correspondence, all those throughout the state, who desire information on art topics, and to assist by advice, and use of the Art Institute, all art movements in the city and state, when requested.

Respectfully submitted,

VANDERLYNN STOW,

President.

COLLEGE OF DENTISTRY

SAN FRANCISCO, July 1, 1915.

To the President of the University,

SIR: An increased enrollment of the first year students exceeding all expectations, marked the opening of the regular term of 1914-15 in the dental school. The percentage of increase during the past four years was 3 per cent, 9 per cent, 22 per cent, and 41 per cent respectively. The increase in the upper classes has been proportionately lowered due to the elimination of weaker material. No special reason can be attributed to this increase in professional registration unless it be that commercial and industrial activities do not offer as good an opportunity to earn a livelihood as the professions do.

The laboratory facilities of the department were taxed beyond the provided capacity which necessitated installing additional laboratory equipment and resulted in a proportionately larger maintenance cost. Should this increased registration continue some measures must be taken to provide additional laboratory and clinical equipment for the students. The usefulness of the school to the people of the state is directly proportional to the number of graduates of high professional standing who go out into the field of regular practice.

In the Junior and Senior years the scholarship standards have been maintained on the same high plane as in the past, with the result that the graduates have established an enviable record in meeting the licensing examination requirements by State Boards

of Examiners. The records of the Bureau of Education at Washington, D. C., show that our dental school has a 100 per cent efficiency rating with Boards of Dental Examiners in Pacific Coast States during the past four years, a record which no other dental school in this country has established. In other words, every graduate of our school has successfully passed the licensing examinations, and it is conceded that examinations by Boards of Examiners in the East and South are no more difficult than those of Pacific Coast States.

Faculty changes during the year include; Professor William Fuller Sharp, title changed to Professor of Clinical Prosthodontia in keeping with the advanced character of instruction given. Professor Edwin Henry Mauk, appointed to the Chair of Prosthetic Dentistry, and Dr. Clark Ransom Giles, appointed as Instructor in Prosthetic Dentistry. The results of these changes are hardly appreciable at the present time, the larger portion of their time has been given to under classmen. A marked increase in clinical efficiency and greater technical skill will undoubtedly be manifested in the upper classes during the ensuing year. Dr. Louis Walker Layne, part time instructor in Operative Dentistry, resigned.

No changes in equipment or building were made except the equipping of a bio-chemical research laboratory. This was provided for instructors' use, and for investigations on the saliva by Mr. John A. Marshall, who undertook graduate work under the direction of the Departments of Physiology and Dentistry. Mr. Marshall was awarded his M.S. degree December 1914, and the results of his work will be of great benefit to the dental profession. While this work was done chiefly in the Dental Department and in some of the State institutions, it was under the direction of the Department of Physiology at Berkeley.

During the year, the question of providing an additional year of instruction has been given much consideration by all the dental schools in the United States, and by the representative Faculties Association. Estimating the curriculum in unit hours at the present time it is found that our dental curriculum, which is fully prescribed, includes 122 hours of study in three years, as

compared to 124 hours required for the baccalaureate degree in academic departments.

The fourth year of instruction which will be added not later than August 1917, by a decision of leading schools in this country will probably include not less than sixteen units of prescribed dental instruction, and an equivalent amount of cultural study in the academic departments.

UNIVERSITY EXTENSION WORK IN DENTISTRY

The second course of extension lectures in the College of Dentistry was given in Los Angeles and San Francisco during the school year, and both were well attended. Doctor Immanuel Otteson of Kristiania, Norway, Professor of Operative Dentistry in Tandlaege Institut, the Dental Department of the Norwegian Government University, presented the lectures and gave clinical demonstrations, the subject being "Local Anesthesia in Operative Dentistry and Minor Surgery." Doctor Otteson is a clinician of high standing on the European Continent, and his work proved intensely interesting and very instructive to the profession in California, as well as in Seattle and Minneapolis, where he gave additional courses under the direction of the University of Washington and the University of Minnesota.

In order that these lectures might become of permanent value a new syllabus series of dental school publications was established which included the lectures of Doctor Teter 1913-14 and Doctor Otteson 1914-15. In addition to these publications the department issues lecture notes on Dental Pathology and Therapeutics by Professor J. B. Tufts and lecture notes on Dental Jurisprudence by Louis Bartlett, Instructor in Dental Jurisprudence, chiefly for the benefit of the students, but available to the members of the profession who desire them.

The facilities of the department, as well as its influence in professional circles, has been manifested by a participation of the members of the Faculty in a number of professional meetings in the Northern section of the state during the past year. This

interest included lectures on oral hygiene and prophylaxis before the Parent-Teachers' organization of the public schools, in private institutions, and orphan asylums. Doctors J. E. Gurley, A. H. Suggett and G. S. Millberry have presented such lectures on several occasions during the past year.

The apparatus used to illustrate these technical lectures includes lantern slides, models and charts, and they have been made use of by practicing dentists in other communities for the purpose of disseminating further knowledge on this phase of preventive medicine. Dr. C. W. James of Fowler, Dr. E. W. Alsberg of St. Helena, and Dr. F. P. Burton of Stockton have lectured on this subject before representative bodies in their communities, while Miss Mary Cravens, teacher in Physiology in the Sacramento High School made use of the equipment in a special series of talks to her classes during the regular instruction periods. A demand is constantly being made upon the department for the use of this equipment by various teachers and professional men.

The members of the Faculty of the school have been liberal contributors to the programmes of the district dental societies, component parts of the California State Dental Association, throughout the year.

The meetings of the San Francisco Society, in particular, were participated in by several members of the Faculty who presented lectures on special subjects during the evenings at the Dental School, and assisted in the programmes of the regular meetings in the County Medical library.

With the organization of a new District Society in Santa Rosa, April 30th, Professors J. G. Sharp and E. H. Mauk, and Dr. C. E. Post, '87, President of the California State Dental Society, presented a programme at the organization meeting. Dr. J. G. Sharp, with Dr. William Palmer Lucas and Dr. Howard Morrow of the Medical School, presented a symposium to the Sacramento District Society on "The Relation of Diseases of the Mouth to the System in General," in November, 1914.

A review of the researches of Dr. H. P. Pickerill was presented to the Alameda District Dental Society at Oakland, March 3rd, and a paper "Recent Studies on the Saliva" was presented at

the second meeting of the Central California Dental Society on May 19th at Stockton by Guy S. Millberry.

Mr. John A. Marshall, who, as previously stated, has conducted some research work on the saliva, has presented the subject matter of his research to the Alameda County Society and the San Francisco District Dental Society.

The net results of this participation of the members of the Faculty in the meetings of the professional organizations throughout the state will ultimately create an esprit de corps in the dental profession, which will be of great value in the future development of the school.

For the first time in the knowledge of the writer the general course of lectures on hygiene at Berkeley was augmented by an illustrated lecture on the development and care of the teeth by Dr. Robert Burns, Jr., '02. The lecture was well received and favorably commented upon by the first year students.

The importance of the care of the mouth and teeth in the preservation of normal health has been broadly recognized by the University in the establishment of a dental office with two licensed dentists in charge in the student's infirmary. The proposal of the University to provide the best dental service for the student body at cost, cannot be too highly commended, and the dental school offers its council and facilities to further this plan in every possible way.

Future Development.—Professional institutions must look to private sources for endowments in the future, at least until such time as the people of the state appreciate the importance of this work, and are willing to make appropriations from the state funds.

The growth of the school is in keeping with the growth of the University as a whole. It is apparent that its development, as in other branches in medicine, is dependent upon other sources of income and endowment, than the state. This fact is exemplified in the recently completed and endowed Forsyth Dental Infirmary for children in Boston, and a similar institution endowed by Baron Rothschild in Berlin. With the development

of the state it is hoped that some of our Western philanthropists will welcome the opportunity that dentistry offers as a benefaction to the children of our state, and in return the department should render all service possible to the people in its own special field.

Respectfully submitted,

GUY S. MILLBERRY,
Dean.

EXAMINER OF SCHOOLS

BERKELEY, July 1, 1915.

To the President of the University,

SIR: AS Examiner of Schools, I have the honor to submit herewith my report for the year 1914-15.

A. GENERAL

The work of the Examiner of Schools, as such exclusive of his duties at the University in the Department of Education during the second half-year, may be conveniently summed up under four heads: (I) personal work in the field, as examiner and visitor of schools; (II) general charge of the work of the University school visitors, which devolves upon the Examiner in his capacity as Chairman of the Committee on Schools; (III) the statistical study of the actual performance in the University of the students who come from the accredited schools; (IV) the correspondence relating to these various fields of activity. A brief account of each of these follows herewith.

(I) In his personal field work with the schools, the Examiner visited during the year eighty-five schools, spending a full day in each, and two days in one or two. These schools are distributed throughout all parts of the State, from San Diego to Shasta County. To reach them required over ten thousand miles of travel, a large part of which was, of necessity, done at night; and as it is practically necessary to return to Berkeley for office work once a week, frequently Saturdays were utilized in part for travel, and Sundays almost always, in order not to lose part or all of a school day. The attempt has been made to see schools in all the

larger divisions of the State each year; no attempt is made to see all the schools of the State in any specified number of years.

In this visiting of schools, two purposes, at least, are kept in view: First, to see and help, if may be, the newer, the smaller, the more remote schools; secondly, not to omit entirely the larger, older, and stronger schools, lest the sense of proportion and balance be lost, and an intimate knowledge of the secondary schools of the state be not retained. Hence, as intimated, a large part of the work has to do with the new, the small, the remote, the becoming schools. In the case of these schools, especially, conferences are held with principal and teachers, and, less frequently, with the Boards of Education, with a view both to building up and strengthening the equipment and work of the school, and, also, to clarifying and harmonizing the relations between school and University. More of this work, especially that with Boards of Education, is, I believe, highly advisable, but the great extent of the territory to be covered and the large number of schools to be seen make it imperative that little time be lost for getting to the next school.

It would probably be better that the Examiner should attempt to see fewer schools and be free to do his work in a less hurried manner.

(II) The "examining of schools," in so far as this term may still be properly retained, has to do mainly—though not exclusively—with the newer, the less strong, and the still undeveloped schools. The really larger part of the work growing out of this relation between the University and the schools, is more properly designated the "visiting of schools." For the past few years, this has been done annually by members of the Faculty designated each year for the purpose.

This year eighteen such visitors went out. They made from five to twenty visits each, a visit meaning a full day spent in a school. In all, visits made by the Examiner in person included, 305 such visits were made. Of these, fifty-five were to private schools, and 250 to public schools. Although the Committee on Schools made a determined effort this year to have every school visited, that made application, in the final count it was found

that a few had been perforce omitted. This failure, which was a source of disappointment to some schools, was due, in the main, to the fact that the visitors get started rather too late in the year; and unforeseen delays occur when it is too late to make good the omission.

As to the value of the present plan of sending out University visitors, the Examiner is firmly of the opinion that both the money and the effort involved are extremely well spent. If the schools and the University should grow too far apart in their sympathies and understanding of each other, it would be nothing short of a calamity to the educational system of the State. Both University and the schools should keep constantly in mind the fact that each is a part of a great whole. By and large, the schools, with their more democratic life, are less likely to forget this plan than is the University. Consequently, much value in this direction alone, not to mention others, cannot fail to result to both members of the system from the fact that so considerable a number of University men yearly come into such close and intimate relations with the work of the schools, whereby the aims and problems of the schools may be seen and studied, not only in relation to the University, but also as they concern the wider educational needs of a rapidly changing social life.

(III) An increasingly larger part of the time of the Examiner is yearly given to making a careful comparative study of the results of the accrediting of schools, insofar as these appear in the work of the students of the University who have come from the schools. The results of these studies, forming the statistical part of the Report, are published separately as a University administrative bulletin. Some of the more important findings are briefly summarized below; for details and a fuller discussion, the bulletin may be consulted.

1. The success of the schools in fitting and inspiring their graduates to do good work in the University grows steadily greater as the years pass. The present freshman class has shown the best scholarship of any during the fifteen years covered by these studies.

2. The scholarship of the girls, as shown by the records, continues to stand above that of the boys. There are, however, many circumstances which modify the importance of this fact.

3. There has been a very marked improvement this year in the work of graduates of boys' private schools, though their record is still below that of the graduates of public schools.

4. The proportion of students doing excellent work remains at the very high level of the last year; while the proportion of those who did notably poorly is, on the other hand, much smaller this year than last.

5. Student graduates of non-California public and private schools have been improving markedly in recent years, and their scholarship this year equals that of the graduates of California schools.

6. Something seems to be decidedly wrong somewhere in the fact that forty per cent of boys and twenty-six per cent of girls from California schools enter the University with matriculation "incomplete," this in spite of the fact that all are graduates of four year high schools and have the requisite number of "units" for admission to the University.

(IV) The correspondence connected with the office of Examiner of Schools has grown steadily heavier with recent years, until it has become a physical impossibility for the Examiner to keep up with it, and at the same time spend the customary amount of time in the field with the schools. Consequently, not only is current correspondence much delayed, but much in this connection that should be done must be wholly omitted.

Respectfully submitted,

W. SCOTT THOMAS,
Examiner of Schools.

UNIVERSITY EXTENSION DIVISION

BERKELEY, July 1, 1915.

To the President of the University,

SIR: The second annual report of the University Extension Division is herewith respectfully presented.

The statistics of this report, if compared with those of the preceding year, will show a large increase in the quantity of the work performed by each of the bureaus operating under this Division. The number of University Extension classes rose from 66 to 149, the enrollments of students in the Bureau of Correspondence Instruction from 1506 to 3399, and the number of lecture centers from 21 to 42. The Bureau of Public Discussion has enlarged its activities by successfully organizing and conducting a state high school debating league, and the Bureau of Information and Municipal Reference has extended its services, particularly through its co-operation with the League of California Municipalities.

The quality of the work, too, has improved. The Division is better organized, more efficiently conducted and the services offered are more closely adapted to the needs and interests of the people. We have tried to profit by our experiences, by our mistakes as well as by our successes. We have learned from the experiences of other institutions. There is much yet to be learned. We recognize that the Division is still in the experimental stage. The necessity of experimentation delays progress. The exact scope and function of University Extension are not definitely determined. All the appropriate activities of this Division cannot be accurately prescribed in advance of experience. Nevertheless,

we are convinced that no mistake was made at the beginning in providing for the five kinds of service offered by the five bureaus originally included in our plan of organization. The problems so far as these bureaus are concerned are chiefly problems of adjustment and of administration. We believe also that the time has come when we may safely expand slightly the scope of the work. There is such demand throughout the state for Visual Instruction that I think we should be warranted in establishing an additional bureau to maintain a collection of slides, films, industrial exhibits, etc., to be circulated among the schools of the state and the organizations that might use them to advantage. Visual Instruction is necessarily involved in the work of this Division. It would be an economy and a welcome service to the state systematically to provide for it.

As up to the present there has been no material change in the organization, and no particular variation in the range of the activities of the Division, this report will be confined chiefly to a detailed presentation of the achievements of the different bureaus.

BUREAU OF CLASS INSTRUCTION

In the work of this Bureau there have been certain serious limitations. We have lacked the ability to provide all the instruction requested, and we have not had a sufficient number of suitable rooms for the meetings of the classes organized. At the beginning of the year there were only three instructors at the service of the Bureau, and only four courses were offered. Accommodations for classes were limited to the Mechanics Institute in San Francisco and Plymouth Center in Oakland. The number of instructors has gradually increased, until at the present time there are twenty-one. The number of courses is now fifty-seven. In October the Hastings College of Law, on the fifth floor of the Underwood Building, 525 Market Street, San Francisco, courteously granted us the privilege of using its class rooms in the afternoons and evenings. Since that time all the classes in San Francisco have met there with the exception of a class in

architectural drawing which convened in the Central M. E. Church, O'Farrell and Leavenworth Streets.

In addition to the San Francisco and Oakland classes eighteen classes have been formed in ten other towns and cities, namely, Vallejo, Martinez, Walnut Creek, Antioch, Stockton, Sacramento, Fruitvale, Palo Alto, San Jose and Los Angeles. The geographic limitations of the work in class instruction can be overcome only by a large instructional force, and by the assumption by this Division of a considerable part of the cost of instruction.

As rapidly as possible there should be added to the instruction offered by this Bureau a greater variety of courses in vocational subjects, more courses of the regular University curriculum carrying credit towards a degree—the former for persons engaged in the various industries, and the latter especially for teachers. With the improved facilities that will be available for the coming year, and without the continued necessity of improvising a supply of instruction for the demands made upon it, the worth of this Bureau as a means of extending the usefulness of the University will be greatly enlarged. The following tabular statement shows the kind and the amount of its activities:

Number of classes conducted:

In San Francisco	107
In Oakland	24
In other towns and cities	18

Total	149
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Number of enrollments	1,768
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Number of students enrolled:

Men	523
Women	572

Total	1,095
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Number of instructors	21
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Number of courses offered	75
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Percentage of attendance (based on reports from seventy-five classes)	89.5
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Number taking more than one course	1,075
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Number of requests for instruction:

Accounting	155
Art	52
Architectural Drawing	27
Architecture, History of	5
Economics and Commercial Law	111
Banking	147
Engineering	125
English	511
French	498
German	127
Italian	23
Mathematics	77
Music	47
Parliamentary Law	104
Political Science	37
Psychology	13
Spanish	527
Stenography	211
Miscellaneous and general	186
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Total	2,983

The subjects studied in the various classes, the places of meeting, the enrollment and the names of the instructors are shown in the following detailed statement:

UNIVERSITY EXTENSION CLASSES 1914-1915

Subject	City	Meeting place	Enrollment	Instructor
Accounting:				
Advanced Acctg.	San Francisco	Underwood Bldg.	16	Mr. L. Lilly
Elementary Acctg. A-1	San Francisco	Underwood Bldg.	9	Mr. J. H. Walker
Elementary Acctg. A-1	San Francisco	Underwood Bldg.	5	Mr. J. H. Walker
Elementary Acctg. A-2	San Francisco	Underwood Bldg.	6	Mr. J. H. Walker
Elementary Acctg. A-2	San Francisco	Underwood Bldg.	2	Mr. J. H. Walker
Elementary Acctg. A-3	San Francisco	Underwood Bldg.	3	Mr. J. H. Walker
Elementary Acctg. A-3	San Francisco	Underwood Bldg.	4	Mr. J. H. Walker
Elementary Acctg. A-3	San Francisco	Underwood Bldg.	4	Mr. J. H. Walker
		Total	49	
Architectural Drawing	San Francisco	Central M. E. Church	8	Mr. W. Steilberg
Art Appreciation	Walnut Creek		16	Mrs. M. G. Holway
Banking:				
Banks and Banking	Oakland	Clearing House	35	Prof. I. B. Cross
Banking and Com'l Law	San Francisco	Am. Institute of Bkng. 1st term	60	Dr. M. E. Harrison
		2nd term	30	
Banking and Finance	San Francisco	Am. Institute of Bkng. 1st term	61	Dr. H. Beckwith
		2nd term	27	Prof. C. H. Parker
		Total	213	
Electricity:				
A-1	San Francisco	Underwood Bldg.	29	Mr. H. H. Bliss
A-1	San Francisco	Underwood Bldg.	9	Mr. H. H. Bliss
A-2	San Francisco	Underwood Bldg.	16	Mr. H. H. Bliss
A-3	San Francisco	Underwood Bldg.	5	Mr. H. H. Bliss
		Total	59	

Subject	City	Meeting place	Enrollment	Instructor
English:				
Debating	Vallejo		11	Mr. N. B. Drury
Elementary Comp. A-1	San Francisco	Underwood Bldg.	18	Miss Nadine Crump
Elementary Comp. A-1	San Francisco	Underwood Bldg.	18	Miss Nadine Crump
Elementary Comp. A-2	San Francisco	Underwood Bldg.	17	Miss Nadine Crump
Elementary Comp. A-2	San Francisco	Underwood Bldg.	19	Miss Nadine Crump
Grammar and Comp.	San Quentin Prison		7	Miss Nadine Crump
Total			79	
English Writers	Vallejo		15	Mr. N. B. Drury
Masterpieces of Literature	Stockton		48	Dr. A. H. Reinhardt
Modern Drama	Stockton		35	Dr. A. H. Reinhardt
Modern Drama	San Francisco	Underwood Bldg.	5	Dr. A. H. Reinhardt
Modern Drama	Antioch		13	Dr. A. H. Reinhardt
Modern Drama	Martinez		19	Dr. A. H. Reinhardt
Modern Drama	Palo Alto		19	Dr. A. H. Reinhardt
Modern Drama	San Jose		20	Dr. A. H. Reinhardt
Modern Drama	San Francisco	Underwood Bldg.	5	Mr. Aubrey Boyd
Total			116	
Public Speaking	San Francisco	Underwood Bldg.	24	Mr. J. G. Sweet
Public Speaking	San Francisco	Underwood Bldg.	11	Mr. J. G. Sweet
Public Speaking	San Francisco	Underwood Bldg.	13	Mr. J. G. Sweet
Public Speaking	Oakland	Y. M. C. A.	11	Mr. J. G. Sweet
Public Speaking	Oakland	High School	9	Mr. J. G. Sweet
Total			68	
Short Story	Fruitvale		11	Dr. A. H. Reinhardt
Short Story	San Francisco	Underwood Bldg.	10	Dr. A. H. Reinhardt
Short Story	San Francisco	Underwood Bldg.	8	Mr. Aubrey Boyd
Total			29	

UNIVERSITY EXTENSION CLASSES—(Continued)

Subject	City	Meeting place	Enrollment	Instructor
French:				
A-1	San Francisco	Mechanics' Institute	18	Miss F. H. Dodge
A-1	San Francisco	Underwood Bldg.	21	Miss F. H. Dodge
A-1	San Francisco	Underwood Bldg.	17	Miss F. H. Dodge
A-1	San Francisco	Underwood Bldg.	13	Miss B. Fryer
A-1	San Francisco	Underwood Bldg.	15	Miss F. H. Dodge
A-1	Oakland	Underwood Bldg.	17	Miss F. H. Dodge
A-1	Oakland	Plymouth Center	17	Miss F. H. Dodge
A-1	Oakland	St. Michael's Church	17	Miss F. H. Dodge
A-1	Oakland	St. Michael's Church	13	Miss F. H. Dodge
A-2	San Francisco	Underwood Bldg.	15	Miss F. H. Dodge
A-2	San Francisco	Underwood Bldg.	7	Miss B. Fryer
A-2	San Francisco	Underwood Bldg.	7	Miss B. Fryer
A-2	Oakland	Underwood Bldg.	13	Miss F. H. Dodge
A-2	Oakland	Plymouth Center	7	Miss B. Fryer
A-3	San Francisco	Underwood Bldg.	14	Miss F. H. Dodge
A-3	San Francisco	Underwood Bldg.	15	Miss F. H. Dodge
A-3	San Francisco	Underwood Bldg.	22	Miss F. H. Dodge
A-3	San Francisco	Underwood Bldg.	16	Miss F. H. Dodge
A-3	Oakland	Plymouth Center	22	Dr. Jean Gontard
A-3	Sacramento		22	Miss F. H. Dodge
B-1	San Francisco	Underwood Bldg.	15	Miss F. H. Dodge
B-1	Oakland	Plymouth Center	16	Miss F. H. Dodge
B-1	Oakland	Underwood Bldg.	15	Miss F. H. Dodge
B-2	San Francisco	Underwood Bldg.	14	Miss F. H. Dodge
B-2	Oakland	Plymouth Center	13	Miss F. H. Dodge
C-1	San Francisco	Underwood Bldg.	18	Miss F. H. Dodge
C-1	Oakland	Plymouth Center	15	Miss F. H. Dodge
C-1	Oakland	Plymouth Center	17	Miss F. H. Dodge
C-2	Oakland	Plymouth Center	15	Miss F. H. Dodge
C-3	Oakland	Plymouth Center	15	Miss F. H. Dodge
D-1	Oakland	Plymouth Center	15	Miss F. H. Dodge
Advanced	San Francisco	Underwood Bldg.	15	Miss F. H. Dodge
130-A	San Francisco	Underwood Bldg.	18	Miss F. H. Dodge
130-B	San Francisco	Underwood Bldg.	15	Miss F. H. Dodge
101	San Francisco	Underwood Bldg.	18	Miss F. H. Dodge
Total			473	

Subject	City	Meeting place	Enrollment	Instructor
German:				
Advanced	San Francisco	Underwood Bldg.	3	Dr. H. L. Schwarz
A-1	San Francisco	Underwood Bldg.	9	Dr. H. L. Schwarz
A-1	San Francisco	Underwood Bldg.	6	Dr. H. L. Schwarz
A-1	San Francisco	Underwood Bldg.	4	Dr. H. L. Schwarz
A-2	San Francisco	Underwood Bldg.	6	Dr. H. L. Schwarz
A-2	San Francisco	Underwood Bldg.	4	Mr. W. Steinbrunn
A-3	San Francisco	Underwood Bldg.	3	Mr. W. Steinbrunn
Advanced	San Francisco	Underwood Bldg.	7	Mr. W. Steinbrunn
Advanced, 3rd Course	San Francisco	Underwood Bldg.	5	Mr. W. Steinbrunn
		Total	47	
Commercial Law	San Francisco	Underwood Bldg.	18	Mr. J. Calkins, Jr.
Commercial Law	San Francisco	Underwood Bldg.	14	Mr. J. Calkins, Jr.
		Total	32	
International Law	Oakland	Y. M. C. A.	3	Mr. F. Schaeffer
Optometry	Oakland	Key Route Inn	43	Prof. R. S. Minor
Shop Arithmetic	San Francisco	Underwood Bldg.	3	Mr. B. Moses
Shop Arithmetic	San Francisco	Underwood Bldg.	6	Mr. B. Moses
		Total	9	
Social Psychology	Vallejo	Lincoln School	29	{ Dr. I. W. Howerth Mr. F. F. Nalder }

UNIVERSITY EXTENSION CLASSES—(Continued)

Subject	City	Meeting place	Enrollment	Instructor
Spanish:				
A-1	Oakland	Plymouth Center	17	Dr. Jean Gontard
A-1	San Francisco	Underwood Bldg.	22	Dr. Jean Gontard
A-1	San Francisco	Underwood Bldg.	15	Dr. Jean Gontard
A-1	San Francisco	Underwood Bldg.	18	Dr. Jean Gontard
A-1	Oakland	Plymouth Center	17	Miss F. H. Dodge
A-1	Oakland	Plymouth Center	13	Miss F. H. Dodge
A-1	San Francisco	Underwood Bldg.	22	Miss F. H. Dodge
A-1	San Francisco	Underwood Bldg.	20	Mr. H. H. Bliss
A-2	Oakland	Plymouth Center	10	Dr. Jean Gontard
A-2	San Francisco	Underwood Bldg.	29	Dr. Jean Gontard
A-2	San Francisco	Underwood Bldg.	18	Miss F. H. Dodge
A-2	Oakland	Plymouth Center	16	Miss F. H. Dodge
A-3	San Francisco	Underwood Bldg.	20	Miss F. H. Dodge
A-3	San Francisco	Underwood Bldg.	12	Dr. Jean Gontard
A-3	Oakland	Plymouth Center	16	Miss F. H. Dodge
B-1	San Francisco	Underwood Bldg.	17	Miss F. H. Dodge
B-1	Oakland	Plymouth Center	12	Miss F. H. Dodge
B-1	San Francisco	Underwood Bldg.	15	Miss F. H. Dodge
B-2	San Francisco	Underwood Bldg.	13	Miss F. H. Dodge
B-2	San Francisco	Underwood Bldg.	13	Miss F. H. Dodge
B-3	San Francisco	Underwood Bldg.	13	Miss F. H. Dodge
Comp. and Corresp.	San Francisco	Mechanics' Institute	19	Miss F. H. Dodge
			Total	369

Subject
Shorthand:

City		Meeting place	Enrollment	Instructor
A-1	San Francisco	Underwood Bldg.	8	Mr. J. H. Walker
	San Francisco	Underwood Bldg.	12	Mr. J. H. Walker
	San Francisco	Underwood Bldg.	3	Mr. J. H. Walker
	San Francisco	Underwood Bldg.	3	Mr. J. H. Walker
	San Quentin Prison		7	Mr. J. H. Walker
	San Quentin Prison		4	Mr. J. H. Walker
Total			37	
A-2	San Francisco	Underwood Bldg.	7	Mr. J. H. Walker
	San Francisco	Underwood Bldg.	7	Mr. J. H. Walker
	San Francisco	Underwood Bldg.	2	Mr. J. H. Walker
	San Francisco	Underwood Bldg.	7	Mr. J. H. Walker
	San Francisco	Underwood Bldg.	2	Mr. J. H. Walker
	San Quentin Prison		6	Mr. J. H. Walker
Total			31	
A-3	San Francisco	Underwood Bldg.	13	Mr. J. H. Walker
	San Francisco	Underwood Bldg.	5	Mr. J. H. Walker
	San Francisco	Underwood Bldg.	5	Mr. J. H. Walker
	San Quentin Prison		12	Mr. J. E. Armstrong
Total			35	
Intermediate Advanced	San Francisco	Underwood Bldg.	9	Mr. J. H. Walker
	San Francisco	Underwood Bldg.	4	Mr. J. H. Walker
	San Francisco	Underwood Bldg.	8	Mr. J. H. Walker
	San Francisco	Underwood Bldg.	5	Mr. J. H. Walker
	San Francisco	Underwood Bldg.	5	Mr. J. H. Walker
	San Francisco	Underwood Bldg.	6	Mr. J. H. Walker
Total			45	

UNIVERSITY EXTENSION CLASSES—(Continued)

Subject	City	Meeting place	Enrollment	Instructor
Typewriting:				
A-1	San Francisco	Underwood Bldg.	8	Mr. J. H. Walker
A-1	San Francisco	Underwood Bldg.	2	Mr. J. H. Walker
A-1	San Francisco	Underwood Bldg.	5	Mr. J. H. Walker
A-1	San Francisco	Underwood Bldg.	10	Mr. J. H. Walker
A-1	San Francisco	Underwood Bldg.	4	Mr. J. H. Walker
			—	Mr. J. H. Walker
			Total	29
A-2	San Francisco	Underwood Bldg.	5	Mr. J. H. Walker
A-2	San Francisco	Underwood Bldg.	2	Mr. J. H. Walker
A-2	San Francisco	Underwood Bldg.	4	Mr. J. H. Walker
A-2	San Francisco	Underwood Bldg.	4	Mr. J. H. Walker
			—	Mr. J. H. Walker
			Total	15
Intermediate	San Francisco	Underwood Bldg.	10	Mr. J. H. Walker
Intermediate	San Francisco	Underwood Bldg.	5	Mr. J. H. Walker
Intermediate	San Francisco	Underwood Bldg.	4	Mr. J. H. Walker
Intermediate	San Francisco	Underwood Bldg.	4	Mr. J. H. Walker
Intermediate	San Francisco	Underwood Bldg.	2	Mr. J. H. Walker
			—	Mr. J. H. Walker
			Total	25
Grand Total: Shorthand and Typewriting			218	
European Capitals and Their Social Significance	Los Angeles	Comstock Bldg.	39	Dr. J. H. Raymond

The secretary of this bureau reports 1787 letters written, 3987 announcements sent out, 7000 bulletins distributed and 155 trips to Oakland, San Francisco and elsewhere in the interest of class work. As general organizer of the Division, she has placed eighteen lecture courses and twelve single lectures. She has written a few articles, and has spoken many times on the subject of University Extension.

BUREAU OF CORRESPONDENCE INSTRUCTION

The number of enrollments in this bureau has increased from 1506 to 3399, the number of courses offered from 106 to 164, an increase of 58, and the number of instructors from 24 to 46. Courses by correspondence are now authorized by the following departments:

English	German
Mathematics	Romance Languages
Drawing	Oriental Languages
Engineering	Latin
Political Science	Law
Education	Zoology
Economics	Philosophy
Music	Anthropology
Commerce	Geography
	Astronomy

To indicate the demands made upon this bureau I may say that since its organization some 12,300 requests for instruction have been received. These cover more than 150 subjects. The following tabulation shows the subjects in which the demands have been greatest and the number of requests for instruction in these subjects:

Accounting	333
Architecture	148
Drawing	319
Economes	144
Engineering	891
English	1,577
French	184
German	178
History	255
Law	564
Mathematics	498
Music	190
Political Science	266
Social Science	108
Spanish	403
Stenography	216
Other subjects	6,195
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Total	12,569

It will be observed that a large part of the requests made are for instruction in vocational subjects. These come from persons actually employed in industry, and desirous of improving their efficiency and increasing their wages. We have been able to respond to such requests in a very limited way. Only by the enlargement of our instructional force shall we be able adequately to meet the needs of the state as here in part revealed.

The requests for instruction in business training and efficiency are many, though scattered, hence not shown above. They are approximately one thousand, or about eight per cent. They are for courses in salesmanship, business management, insurance, real estate, brokerage, etc., etc. Business men have personally urged the importance of providing instruction in these subjects. We hope to be able to make such provision next year.

Only about one-fifth of the number of persons requesting instruction have enrolled as students. This is accounted for in part by the fact that so many of the courses called for are not yet offered by the bureau. It is the opinion of the secretary that "Were we able to give all courses of instruction, particularly along practical lines, for which people seek, we could just as

easily have received three or four times as many enrollments as we have had during the past year. We are constantly importuned to give courses in business subjects, in technical branches, in applied economics and other useful branches of knowledge, and are unable to respond affirmatively." This difficulty we are overcoming gradually by offering additional courses.

Of the number of persons enrolling during the past year, 1531 in all, 990 are men and 541 are women. About sixty per cent are between the ages of twenty-one and thirty-five. So far as the facts are indicated, more than fifty per cent enrolled with the immediate purpose of advancing themselves in their vocation. Four hundred and fifty-six courses were completed.

So much for the achievements of the year in this Bureau. Perhaps the most gratifying fact is that the end of the year finds us in a far better condition to promote the work than we have been heretofore. We have more instructors, more help and more experience. These, we believe, will show in a rapid enlargement of the work next year.

BUREAU OF LECTURES

In the Bureau of Lectures attention has been confined almost exclusively to the provision of courses of lectures designed to instruct rather than to entertain. The time has not yet come, or at all events we are not yet prepared, to occupy the field of the lyceum. Indeed, thus far we have not been able financially to emphasize the work of this bureau. No secretary has been appointed. It was felt that at the present stage of our development monies available might better be devoted to strengthening the work of other bureaus. Hence the placing of lecture courses has been carried on, so to speak, incidentally.

In spite of this forced neglect of the lecture work, we have provided for forty-two courses and several single lectures. Many of the latter have not been recorded. The following is a conspectus of the work of this Bureau:

Number of Lecture Courses provided	42
Number of Single Lectures	10
Number of Lectures	281
Number of Lecturers employed	36
Total aggregate attendance (estimated)	90,575

Place	No. of Lectures	Average Attendance (Estimated)	Lecturers and Subjects
Alameda	6	1500	Prof. E. Neuhaus, Art of the Exposition.
Chico	6	250	Prof. Maria Sanford, English Literature.
Eureka	3	100	Prof. C. E. Kofoid, General Biology.
Fruitvale	6	200	On special subjects— Profs. Kroeber and Barrows.
Fresno	6	300	On special subjects— Profs. Barrows, Howerth, San- ford, Holway, Kofoid, Strat- ton.
Hayward	6	75	Mr. Wallace Hatch, The Community School.
Hayward	6	1200	Prof. E. Neuhaus, Art of the Exposition.
Hollywood	3	1000	Prof. J. H. Raymond, European Capitals and Their Social Significance.
Jackson	6	250	Dr. Aurelia Reinhardt, Contemporary Drama.
Long Beach	6	300	Prof. Raymond, European Capitals.
Los Angeles	6	1000	On special subjects— President Wheeler, Profs. Bar- rows, Howerth, Cross, Ko- foid, Stratton.
Los Angeles	6	450	Prof. Raymond, European Capitals.
Los Angeles	6	150	Dr. Immanuel Otteson, Local Anesthesia.
Merced	6	200	President Wheeler, Profs. Bar- rows, Howerth, Cross, Kofoid, Stratton.

Place	No. of Lectures	Average Attendance (Estimated)	Lecturers and Subjects
Modesto	6	150	On special subjects— Prof. Howerth, Kofoid, Cross, Stratton, Kroeber.
Oakland	6	1500	On special subjects— President Wheeler, Profs. Bar- rows, Howerth, Cross, Kofoid, Stratton.
Oakland	6	300	Prof. Frederic Starr, Mexico, Japan, Korea.
Oakland	15	45	Prof. R. S. Minor, Optometry.
Oakland	6	1500	Prof. E. Neuhaus, Art of the Exposition.
Orland	6	75	Prof. Maria Sanford, English Literature.
Oroville	6	150	Prof. Maria Sanford, English Literature.
Redlands	6	250	Prof. Raymond, European Capitals.
Richmond	6	1200	Prof. Neuhaus, Art of the Exposition.
Riverside	6	300	Prof. Raymond, European Capitals.
Sacramento	6	500	On special subjects— President Wheeler, Profs. Bar- rows, Howerth, Stratton, Ko- foid, Cross.
Sacramento	6	100	Prof. David P. Barrows, Political Science.
Sacramento	6	100	Prof. Maria Sanford, English Literature.
San Bernardino	6	600	Prof. Raymond, European Capitals.
San Diego	9	75	On special subjects— Prof. Howerth, Crandall, Ko- foid, Allen Barnhart, Carpen- ter.
San Diego	6	500	Prof. Raymond, European Capitals.

Place	No. of Lectures	Average Attendance (Estimated)	Lecturers and Subjects
San Diego	6	400	On special subjects— President Wheeler, Profs. Barrows, Howerth, Stratton, Kofoid, Cross.
San Francisco	15	100	On special subjects— Profs. Barrows, Rugh, Holway, Bolton, Bradley, Wells, Noyes, Hart, Smithson, Reinhardt, Cory, Mr. Drury, Mr. MacMinn.
San Francisco	6	600	On special subjects— President Wheeler, Profs. Barrows, Howerth, Cross, Kofoid, Stratton.
San Francisco	6	150	Dr. Immanuel Otteson, Local Anesthesia.
San Jose	6	600	On special subjects— Profs. Howerth, Krehbiel, Kroeber, Cross, Stratton, Kofoid.
Santa Barbara	11	300	On special subjects— Profs. Howerth, Kern, Raymond, Mr. Nalder, Miss Libby.
Santa Rosa	6	100	On special subjects— Profs. Howerth, Cross, Stratton, Kofoid, Krehbiel, Kroeber.
Stockton	6	500	On special subjects— President Wheeler, Profs. Barrows, Howerth, Stratton, Cross, Kofoid.
Tomales	2	100	On special subjects— Profs. Howerth and Stratton.
Tulare	6	300	On special subjects— Profs. Sanford, Howerth, Kofoid, Barrows, Holway, Stratton.
Venice	6	200	Prof. Raymond, European Capitals.
Woodland	6	60	Prof. Maria Sanford, English Literature.

The chief difficulty encountered by this bureau is, as was said in the report of last year, to secure lecturers with the experience and the scholastic acquirements necessary to insure lectures of unquestionable educational value, with the art of presenting their subject so as to hold the attention of their audience, and with the social interest demanded in university extension work. Such lecturers are hard to find. Those on the University faculty are, as a rule, too much occupied with their regular duties to permit of much outside lecturing. Some are able to give occasional lectures or courses of lectures, and we gladly avail ourselves of their services. We have employed a few lecturers of established reputation from the outside, and shall continue to do so. The continued success of the bureau plainly depends upon the knowledge, oratorical skill and seriousness of purpose of those who lecture.

BUREAU OF INFORMATION AND MUNICIPAL REFERENCE

The activities of this bureau are carried on in conjunction with the League of California Municipalities, The California Conference on City Planning, the University Library, and the State, County and City libraries. It has responded to 131 inquiries of the most varied character, and 53 special inquiries from city officials and others relating to municipal government.

Affiliation of the bureau with the California League of Municipalities was effected at its October convention in Del Monte. The Secretary of the bureau became assistant secretary of the league. At this meeting the bureau presented a city planning exhibit, the material of which it retains for future use.

The University Library, through the appointment of a document librarian who is to secure a collection of city, county, state and government documents, makes it possible for the secretary of this bureau to render valuable service to the people of the state through the distribution of knowledge relating to municipal subjects, owing to the easy access to such knowledge here at the University.

The secretary of the bureau also has charge of the correspondence courses in political science offered by this Division.

BUREAU OF PUBLIC DISCUSSION

This bureau has rendered valuable service in the way of furnishing information and suggestions relating to the study and discussion of public questions. Its attention, however, has been devoted chiefly to the organization and supervision of a state debating league composed of 71 high schools. This has involved the preparation and publication of a constitution for the league, the securing of members, the organization of divisions and districts, the matching of schools, the provision of questions for debate, the sending of judges and the arrangements for the final championship debate here at the University. A detailed report of this league has been published in a separate bulletin, a copy of which is handed you herewith.

During the year, and in addition to the Constitution of the Interscholastic Debating League of California and the First Annual Report, bulletins have been issued on the following subjects: "Debating Material," "Debating and Debating Societies," "Constitution and Rules and Regulations of the Interscholastic Public Speaking League of California." Four thousand six hundred and four of these bulletins, together with 1974 blanks, forms, bibliographies, clippings and miscellaneous publications have been distributed.

During the coming year the work of this bureau will be enlarged by the inauguration of a state-wide contest in extempore speaking, which will be carried on as supplementary to the regular debating work.

WORK IN THE PRISONS

Correspondence instruction and class instruction in the State Prisons has been carried on throughout the year. In San Quentin the work has been limited almost entirely to instruction by correspondence, the exception being classes in English and in Stenography. In Folsom the entire educational work is under our general direction. It has been organized by Mr. M. J. Jacobs, who deserves great credit for his continued attention to this work,

without compensation other than his expenses. Mr. Jacobs visits the prison each week end. He has organized a school department consisting of a teaching force, a library force and a force engaged in book binding. In his absence the teaching force, consisting entirely in men selected from the prisoners, is supervised by a principal assistant who is also in charge of the printing press. One man, acting as clerk, has charge of the records of the men, of the books, the enrollments, etc. Another has charge of the schedule of classes and gives instruction. In addition to these there are ten teachers, most of them assigned to the school and to no other work. A "class runner" brings the men to their classes and takes them back to their work. The library force consists of a librarian and two assistants. The book bindery is in charge of a man who repairs the books and binds the magazines. The classes, subjects and enrollments are as follows:

14 classes in Spanish and English	123 pupils
10 classes in Arithmetic	152 pupils
3 classes in Telegraphy	52 pupils
9 classes in Stenography	48 pupils
3 classes in Bookkeeping	16 pupils
2 classes in Penmanship	29 pupils
1 class in Drawing	4 pupils
1 class in Mechanical Drawing	2 pupils
1 class in U. S. History	9 pupils
1 class in Music	45 pupils
<hr/>	
Total 45 classes	480 pupils

During the year 354 prisoners have enrolled for correspondence instruction, 349 men and 5 women.

All this prison work, both class instruction and correspondence instruction, has been carried on without remuneration to this Division. It is perhaps time to request the prison authorities to share the burden of the expense involved, particularly in correcting papers, and this request will be made. Instruction for the prisoners in the United States Disciplinary Barracks on Alcatraz Island is to be provided during the coming year, and in this case the prison authorities assume a part of the expense

CO-OPERATION OF THE SANTA BARBARA NORMAL SCHOOL

A plan of co-operation in the provision of instruction by correspondence and by lectures in the subject of Home Economics has been arranged with the California State Normal School in Santa Barbara. In accordance with this plan the normal school provides eight courses of instruction in Home Economics and also demonstrations in this subject, while the Bureau of Correspondence Instruction administers the work. We are hoping by this plan of co-operation to render valuable service, particularly to the women of the State, but sufficient time has not elapsed to anticipate results.

The special appropriation by the legislature of \$40,000 for the support of this Division during the next biennium enables us to enter upon the work of the coming year with courage and with confidence. The amount appropriated, however, will not enable us to meet the expectations of those who may now expect us to provide for all the educational needs of the state. We cannot apply it all to the enlargement of our working force or to the establishment of new forms of activity. It must be devoted in part to providing sufficient compensation for those who have been assisting us either without pay or for a salary altogether disproportionate to the services rendered, and in general to placing the work already undertaken on a firmer basis. We could expend a much larger sum without providing adequately for the immediate needs of the Division. To supply the educational needs of the state that are not already provided for, or at least to supply them in part and to stimulate other institutions to undertake extension work, for that is what we are really trying to do, is a large and an expensive undertaking. Few who are not intimately associated with the work are likely to comprehend its vastness and the consequent necessity, if it is to be done effectively, of a future expenditure which might at first thought seem to be enormous.

Respectfully submitted,

I. W. HOWERTH,
Director.

GRADUATE SCHOOL

BERKELEY, July 1, 1915.

To the President of the University,

SIR: I have the honor of presenting my report on the Graduate School for the academic year 1914-15.

Attendance.—The total registration of graduate students for the year was 832, including 20 students admitted to study in absence, an increase of 17 per cent over the preceding year. In five years the registration has very nearly doubled. Of the 811 resident students 59 failed to file study cards or withdrew. The remaining 752 were distributed among the professional schools and colleges as follows: Jurisprudence 65, Education 48 (not including students in the School of Education with a first major in other subjects), Commerce (including students in other colleges with major subject Economics) 46, Agriculture (all subdivisions) 43, Chemistry (including students in other colleges with major subject Chemistry) 39, Medicine (students who take the first or second year at Berkeley in graduate standing) 27, Architecture 19, Engineering 17, with a total of 304 or 40.4 per cent of the entire graduate student body. The distribution among the modern and ancient languages and literatures was: English 55, Romanic Languages 50, German 41, Latin 29, Greek 4, Semitic 4, Oriental 2, Slavic 1, with a total of 186 or 24.7 per cent. The distribution among the natural and allied sciences was: Mathematics 30, Zoology 23, Physics 16, Botany 16, Astronomy 8, Palaeontology 7, Physiology 7, Hygiene 6, Anatomy 4, Geography 3, Geology 2, Mineralogy 2, Pathology 2, Anthropology 1, with a total of 127 or 16.9 per cent. Other subjects were represented as

follows: History 58, Philosophy 24, Political Science 23; these three subjects having a total of 105 or 14.0 per cent. The remainder is made up of Home Economics 12, Drawing and Art 11, Physical Education 6, Music 1, with a total of 30 or 4.0 per cent. For registration up to September 1, the number of men exceeded the number of women by 16 per cent. In 1913-14 the men were in the majority by 30 per cent, while in 1912-13 the number of men and women was nearly the same.

In addition to the 832 registered students, 80 accepted candidates for higher degrees continued their studies under the direction of the University during temporary absence. The growth in the number of graduate students in the Summer Session is very marked. In the Summer Session, 1914, 825 students holding bachelor's or higher degrees were enrolled as compared to 443 for the preceding year, an increase of 86.2 per cent. Deducting 87 as an estimated number of duplicates, approximately 1650 students came under the supervision of the Graduate School.

Institutions Represented.—Four hundred and thirty-one or 53.7 per cent of 802 classified graduate students were graduates of the University of California; 88 or 11.0 per cent came from other California institutions (Leland Stanford Jr. University and Pomona College sending 28 and 27 respectively); 49 or 6.1 per cent came from other institutions west of the Rocky Mountains; 139 or 17.3 per cent from Middle West institutions; 68 or 8.5 per cent from Eastern and Southeastern institutions; 27 or 3.4 per cent from foreign institutions.

One hundred or 27.1 per cent of all graduate students coming from other institutions came from institutions belonging to the Association of American Universities.

Candidates for Higher Degrees and Degrees Conferred.—At the end of the academic year the number of accepted candidates for higher degrees and the number of degrees conferred were as follows (figures in parenthesis represent the corresponding numbers for the preceding academic year): For the master's degree 233 and 119 (220 and 129); for the degree Graduate in Public Health 5 and 5 (0 and 0); for the degree Graduate in Architecture 5 and 3 (2 and 2); for the degree Juris Doctor 25 and

20 (17 and 16) ; for the degree Doctor of Philosophy 81 and 22 (71 and 14). Fifteen (19) candidates for the master's degree and 2 (13) candidates for the degree of Doctor of Philosophy were disqualified or withdrew. The number of Recommendations for the High School Teacher's Certificate issued for the year was 225 (194). The total number of higher degrees and teacher's recommendations granted was 574 (506), not including the degrees recommended by professional schools in San Francisco.

It is interesting to note that the percentage of candidates for the master's degree, completing their work during the year, 51.7 per cent (58.6 per cent) has diminished, while the number and the percentage of candidates for the degree of Doctor of Philosophy, 81 (71) completing their work during the year has greatly increased, 27.2 per cent (19.7 per cent).

The decrease in number and percentage in master's degrees appears to be due to the new requirements of the School of Education, which now demand either two majors and one minor or one major and three minors for the recommendation for the high school teacher's certificate, and to the increasing departmental standards for the degree. These two causes make it increasingly difficult for students to meet both the requirements of the School of Education and of the department of their major subject in the same graduate year. With careful planning of work in the upper division good students should be able to meet both requirements in one graduate year. Practically all of the candidates for the master's degree who defer the completion of the work for the degree beyond the first graduate year are present or prospective teachers. Up to very recently the tendency of the University was to make it possible for a student to secure his master's degree at the same time as his recommendation for the high school teacher's certificate. The schools give preference to teachers who have secured the master's degree. The present tendency seems to be to compel the student to commit himself either to the immediate preparation for teaching or to bona fide graduate work along some chosen line. The conflicts involved will probably settle themselves in the future by the adoption of a special higher degree for the School of Education and to the

granting of the master's degree on the basis of strictly graduate work, such as is laid down in our requirements, rather than on the basis of continued residence for a fifth year. The master's degree might thus become a mere preliminary to the doctor's degree and as such would be superfluous except for students who are not qualified to go beyond the master's degree. Some of the best graduate students also want the master's degree as a credential in migrating from one graduate school to another, and it is much coveted in the professional schools as a certificate of professional training.

The new requirements of the School of Education were introduced at the opening of the second half of the past academic year, but in the nature of things were not made retroactive. It is interesting to note that 57 per cent of University of California graduates and 73 per cent of graduates of other institutions completing the work for the high school teacher's recommendation at the end of the second half-year failed to comply strictly with the requirement of one major and three minors or two majors and one minor.

Up to the present time the University has conferred a total of 126 degrees of Doctor of Philosophy. Of these 22 or 13.5 per cent were conferred during the academic year 1914-15. The table which follows gives a comprehensive view of the past and present activities of departments in regard to graduate and research work leading to the degree of Doctor of Philosophy.

	Total No. Ph.D.s conferred	Ph.D.s conferred, 1915	Candidates Ph.D., 1914-15
Agriculture	2	.....	3
Anthropology	2	.....	.....
Astronomy	17	1	6
Botany	9	3	5
Chemistry	11	5	7
Economics	2	.....	2
Education	2	.....	9
English	4	.....	1
Geology	8	.....	1

	Total No Ph.D.s conferred	Ph.D.s conferred, 1915	Candidates Ph.D., 1914-15
German	3	.....	3
Hebrew	1	.....	1
History	10	5	13
Jurisprudence	.....	.....	1
Latin	4	.....	2
Linguistics	1	.....	.....
Mathematics	8	.....	2
Oriental Languages	.....	.....	1
Palaeontology	5	2	4
Philosophy	3	1	2
Physics	6	2	3
Physiological Chemistry	2	.....	.....
Physiology	9	.....	1
Political Science	3	.....	4
Romanic Languages	.....	.....	5
Zoology	14	3	5
	—	—	—
Total	126	22	81

Graduate Work in the Summer Session.—Of the 825 (433) students holding a bachelor's degree or its equivalent in the Summer Session of 1914 (1913), 334 (202) were enrolled in strictly graduate courses. Sixty-one (8) were engaged in study for a higher degree or the recommendation for the high school teacher's certificate. Upper division courses in the Summer Session, 1914, were taken by 1464 students, as compared to 924 for 1913. Of the 81 candidates for the master's degree who continued their candidacy beyond Commencement, 1915, 20 candidates (or approximately 25 per cent) are including summer session work in their proposed programme for the master's degree. Of the 119 receiving the degree in May, 18 candidates (or a little over 15 per cent) had included work done in summer sessions in partial fulfillment of the requirements for the degree. The demands of graduate students for proper upper division and graduate work in the summer session has been a source of many complications. In the past, courses listed with numbers above 100 or 200 were elected

in good faith by students as upper division or graduate courses respectively, in partial fulfillment of the unit requirement for the master's degree and for the recommendation for the high school teacher's certificate, but departments subsequently would refuse to accept many of the courses as a proper equivalent for work done during the regular session, and the student would be compelled to continue work and residence in the University beyond his original anticipation. These difficulties have now been entirely removed through a definite understanding with all of the departments represented in the summer session. Last spring the proofs of the summer session announcement were submitted to the departments by the Dean of the Graduate School with a request that they definitely designate those upper division and graduate courses which would be accepted in partial fulfillment of the requirements for a master's degree. Each department was also requested to appoint an advisor for the summer session. The information received was printed in a bulletin and distributed to graduate students in advance of registration. Allied with the demand for opportunities for graduate and research work during the summer sessions is the demand for opportunities for similar work in the interval between commencement and the opening of the summer session. The departments of Anatomy, Astronomy, Chemistry, Palaeontology, Public Health, and Zoology were agreeable to volunteer in offering the desired opportunities and made announcements to that effect. In each of these departments professors on the regular staff of the University were in charge of the work. It thus becomes quite apparent that there is a place for graduate work in the summer session and that the University will find it necessary to extend the opportunities in that direction in such departments in which the nature of the work permits of satisfactory graduate work being done in the short time of six weeks. Several departments report that in preparation, seriousness, and results attained the graduate students of the summer session, who as a rule are of a maturer age than those of the regular session, compare very favorably with the students of the regular session. In a few departments they have been found superior.

Admission to the Graduate School.—The proper rating of the credentials of students seeking admission to the Graduate School has presented a problem of considerable difficulty for many years. On the basis of past experience and from other authoritative sources a list of American institutions has now been prepared from which students are admitted to general academic citizenship in the graduate school on mere presentation of their diplomas and without examination of their detailed credentials. This list contains 270 institutions. These institutions represent a standard of a four-year high school and a four-year college course of accepted merit. Admission to the graduate school does not, however, constitute admission to candidacy. When a student applies for candidacy, then his credentials, no matter from what institution he may come, are evaluated with reference to the basic requirements of our bachelor's degree. Any shortage in the 36 units of upper division major courses, with 15 units in one department, is added to the minimum requirement for the master's degree. It is assumed that graduates of institutions belonging to the Association of American Universities have completed 36 units of upper division major work. Their credentials are examined only with reference to the requirement of 15 units in the department of their major subject. In cases of students coming from institutions not on the accepted list, the credentials are carefully examined before the student is admitted to the graduate school. This method of administering admission has proved eminently satisfactory.

The Announcement of the Graduate School.—The policy of issuing an announcement of the graduate school was revived during the past academic year. The only previous announcement of the Graduate School was issued in April, 1912, and was for the year 1912-13. A new announcement was issued in January, 1915, and referred to the academic year 1915-16. Intending graduate students, therefore, were informed well in advance of the opportunities for graduate study and research that they might find in the University of California. From the number of inquiries received in consequence of the distribution of the graduate school announcement it would appear that the number

of graduate students in 1915-16 will greatly exceed that of 1914-15. The Announcement of the Graduate School aims to present in condensed form all information that refers strictly to the graduate school. It is not an announcement of courses, but it gives comprehensive information of our organization, requirements for all higher degrees, fellowships and scholarships available, and of the opportunities for graduate study and research in different departments. For detailed information regarding individual graduate courses the students are referred to the Announcement of Courses. By action of the Senate the Announcement of the Graduate School hereafter will be issued annually.

New Legislation.—Legislation regarding the Graduate School usually is initiated in the Committee on Higher Degrees. During 1914-15 the membership of this committee was enlarged from 18 to 21 by the addition of the Chairman of the Library Committee, the Dean of the College of Agriculture, and a representative of the Medical School, resident in Berkeley. On the recommendation of the Committee on Higher Degrees the Senate has adopted a resolution which makes members of the Academic Senate, above the rank of instructor in this University, ineligible to receive higher degrees in course from the University of California. On recommendation of the Senate the Regents have established the degree of Graduate in Public Health and the Senate has adopted a professional curriculum leading to that degree. The degree was conferred for the first time at Commencement, 1915, the number of recipients being five.

Difficulties that have arisen in the past with reference to our requirement for the printing of the thesis for the degree of Doctor of Philosophy have been removed by the adoption of a regulation making it obligatory on the part of the candidate to deposit a complete typewritten copy in the Library and leaving it to the judgment of the sub-committee as to whether the dissertation shall be printed in full or in an abbreviated form.

The administrative groups of the University were found to be unsatisfactory organizations to have complete charge of the supervision of candidates for higher degrees and to make recommendations to the Committee on Higher Degrees. The duties

hitherto assigned to the divisions have therefore been transferred directly to the Committee on Higher Degrees. Under a new organization adopted by the Senate, the Committee on Higher Degrees becomes a committee of the Academic Senate instead of a committee of the Academic Council. By action of the Academic Senate the Graduate School hereafter will be known as the Graduate Division and the Committee on Higher Degrees has been instructed to report to the Academic Senate on all matters relating to the Graduate Division. Just as the Lower Division of the University represents the freshman and sophomore years and the Upper Division represents the junior and senior years in all of the colleges, so does the Graduate Division represent all matters relating to graduate study and research in the University at Berkeley. These divisions represent horizontal sections in the University in distinction to the colleges and schools which represent vertical sections.

The powers transferred to the Committee on Higher Degrees under the new organization should lead to higher standards and greater freedom on the part of the student in the shaping of his programme of studies for a higher degree and should remove many restrictions which have been and are still imposed on the student on account of our past organization.

Respectfully submitted,

A. O. LEUSCHNER,

Dean of the Graduate School.

HASTINGS COLLEGE OF THE LAW

SAN FRANCISCO, July 1, 1915.*To the President of the University.*

SIR: The college year just passed differed but little from its predecessor, except that it was somewhat inferior to it both in the number of students and in their quality. The total number of students was seventy-three and the number of those that received the degree was eighteen. On the whole the class was a good one, for while somewhat deficient in scholarship it had a spirit and enthusiasm beyond the ordinary class; and this as we know counts for much. The Moot Court work, which is so important, was particularly well done. We still carry on our work in the Underwood Building, but before the end of the next college year, we will be housed in the New City Hall. Our faculty is the same as it has been for some years.

Respectfully submitted,

EDWARD R. TAYLOR,

Dean.

HOOPER FOUNDATION

SAN FRANCISCO, July 1, 1915.

To the President of the University,

SIR: I have the honor to present the following report of The George Williams Hooper Foundation for Medical Research:

The work for the past year has consisted mainly of organization of the research and technical staff, accumulation of equipment, together with laboratory changes and additions. In September, 1914, Dr. E. L. Walker was added to the staff and immediately took up plans for his work. Dr. Walker came direct from his service in the Philippine Islands, where his work in amebic dysentery and malaria has been so conspicuous. Dr. C. W. Hooper joined the staff at this time, coming from the Johns Hopkins Medical School, and aided in the work of organization. In October Dr. R. A. Kocher reported for work, having recently returned from two years' study in the Chemical Institute and Medical Clinic in Munich. His chemical work was under way within a few weeks and is progressing favorably. Dr. Karl F. Meyer was appointed in January, 1915, but during the second semester continued his teaching work in the Department of Pathology and Bacteriology, besides pursuing his own work and arranging his laboratory room in this research laboratory. In February Dr. F. H. Rodenbaugh was appointed and immediately took up his work in experimental medicine. Dr. J. L. Whitney was appointed to do joint work in the medical clinic and research laboratory, spending his time in both places and preparing for the future work on diseases of the respiratory system. Dr. S. H. Hurwitz was appointed in April and reported for work after a trip through the East, visiting various medical schools and labor-

atories. He has spent the past year and a half on Dr. Cushing's staff at the Brigham Hospital, Harvard Medical School.

Building changes were taken up in August, 1914, and of necessity completed before much real experimental work could be initiated. The top floor of the research laboratory was completely made over, a new skylight and several windows being cut through. The usual equipment of workbenches, sinks and hoods was installed and space for a considerable number of workers was developed. A chemical room was equipped on the main floor under the direction of Dr. Kocher. A small staff library was cut off on this floor and a small nucleus of books and journals is accumulating.

The front entrance stairs was done away with and this entrance hall on the main floor was joined to a small work room to give a fine working laboratory, which is occupied at present by Dr. Cooke. New windows were then cut through in the basement and a new room completed to the right of the entrance door. The old animal cages in the basement were replaced by stack cages for guinea pigs and rabbits. An automatic air compressor was installed in the basement and air is available in all laboratories on the top floor. In like manner vacuum pipes run under the benches on the top floor, but this rotary pump is on the top floor. A motor generator set to furnish direct current is also installed in the basement.

A new animal house has been constructed on the hillside back of and parallel to the laboratory. It consists of six rooms opening into a long corridor on the front side and concrete yards on the back side. The rooms are of uniform size, with cement floors and central drains, and are equipped with metabolism cages of various types. All rooms are steam heated and all animals live under the best hygienic conditions.

Work on several broad research problems is in progress. Several important problems dealing with intestinal obstruction are being investigated by Drs. Whipple, Cooke, Hooper, Rodenbaugh, and Kilgore. Work is in progress which will throw some light on metabolism of bile pigments and hemoglobin—Drs. Hooper and Whipple. Dr. Kocher is investigating important

factors in the chemistry of cancer growth. Dr. Walker is studying the effect of various drugs which are specific for various trypanosomes, the parasites of sleeping sickness. Drs. Walker and Meyer have recently made a short preliminary survey of the Sacramento Valley to determine many points of interest concerning the prevalence and transmission of malaria in California. This will lead to further work in this field and information of value to the State will be put in the hands of the State Board of Health. Dr. Meyer is working on problems related to the filtrable viruses, especially the virus of rabies. Drs. Meyer and Christiansen are studying the formation of hemolysins and toxins by the paratyphoid and typhoid groups, also the differentiation of various pathogenic yeasts and related organisms.

Dr. Hurwitz is investigating various clinical cases which show symptoms of hemorrhage or abnormal blood coagulation. The treatment of such cases is being greatly improved and a specific therapy may be anticipated in the near future. Dr. Walter C. Alvarez as volunteer worker in the laboratory is investigating the rhythm of various portions of the gastro-intestinal tract in health and disease. This work has important bearing on many diseased conditions of the intestinal tract.

Respectfully submitted,

GEORGE H. WHIPPLE,
Director.

UNIVERSITY INFIRMARY

BERKELEY, July 1, 1915.

To the President of the University,

SIR: I have the honor of presenting to you the following report concerning the activities of the Infirmary for the academic year, 1914 and 1915:

My incumbency dates from January 1st, when I was appointed by the Board of Regents to fill the vacancy incurred by the death of Dr. George F. Reinhardt, the founder of the Infirmary. We are endeavoring to carry on the work according to his ideals in working for the best interest of the student body.

The professional as well as the administrative duties for the first semester of the past college year were ably conducted and discharged by Dr. A. M. Meads, a member of the staff. His influence and assistance have been appreciated. Dr. Meads, last year, was honored by receiving the alumni prize of Bellevue Hospital for his article on "Acidosis."

The growth of the University has naturally added increased burdens upon the Infirmary. The advance in medical science with its newer discoveries in diagnosis, treatment, etc., requires more time for examination and more or less specialism. This factor adds a slight increase to the cost of maintenance, *e.g.*, for serums, X-rays, etc. The professional attention each student receives at the Infirmary for the nominal sum expended would cost under ordinary circumstances at least ten times the amount. Our staff delights in assuming a personal interest in the welfare of each student demanding their attention. This is accomplished in the broad spirit, which makes no distinction of types.

During the past semester the Department of Hygiene with the Infirmary staff, have held regular meetings at which problems for the best interests of the Department were discussed. The Department of Physical Education co-operated with our Department at these meetings. Plans are being made, as an outcome of these joint meetings, to have a member of the Infirmary staff co-operate with the Physical Education Department, to adopt a new method of examination for intrants, and to recommend students for structural exercises.

The vaccinations were conducted at the Infirmary under the supervision of Professor Force, the Epidemiologist of the Department. By the application of his technic and observations he has accredited himself and won for the Infirmary an international reputation.

Dr. Paroni, the senior woman physician, has performed her duties as House and Dispensary Physician well; also conducting her lecture course in Hygiene, which has had a splendid influence upon the women students.

In addition to her duties as Assistant Physician, Dr. Risdon has been appointed Anaesthetist at the Infirmary, a very important adjunct to the surgeon.

The eye, ear, nose, and throat service is undoubtedly one of the crowning features of the Infirmary. Dr. Schutz's half time service has been utilized to the utmost capacity, as may be observed by referring to the statistics of this report.

The Roentgen Department has been used extensively this past year, as this means of diagnosis is being resorted to more and more, not only for fractures and for the recognition of foreign bodies, but for many chest and abdominal diseases. In all suspicious accidents to employees where a doubtful or actual injury to a bone occurs an X-ray picture is made for a record. This is a protection to the University in the event of a contest before the Industrial Accident Commission. Dr. Alvin Powell has had charge of the X-ray Laboratory this past year and has done most creditable work.

During the month of March, 1915, for the first time in the history of the University, over one hundred more women than men

were treated at the Infirmary. Women take up more time for examinations than men, probably on account of their different mode of wearing apparel.

It is not surprising, with such a great number of students, to find a considerable amount of operative surgery dealing principally with such cases as appendicitis, hernias, fractures, and the operative treatments of the nose and throat. Our statistics show in operative cases for the past term 100 per cent successful cures, a record that is unusual. Out of the large number of patients treated for medical and surgical diseases who were admitted at the Infirmary, only one death is recorded.

Agreeable terms have been consummated with the Dean of the Summer Session relative to Infirmary fees for the Summer Session. Also a plan has been submitted to the various deans and the Military Department for the solution of the problem of excuses, which will go into effect this coming term.

The State Hygienic Laboratory has been of material assistance to the Infirmary. To Dr. Sawyer and his associate, Dr. Geiger, we owe a debt of gratitude for their various examinations and advice, and for the material they have put at our command, which has been of inestimable value to our Hygiene Department.

The administration of the Infirmary of the University of California is recognized as a standard of completeness in methods of examining students, its system of records, and the care and treatment of students. This conclusion is confirmed by the numerous inquiries constantly received from other institutions in this country and abroad, who desire information concerning our system and plans with the intention of duplicating them.

As a memorial to the late Dr. George F. Reinhardt, by whose ideals and efforts the Infirmary was made possible, his widow has donated his medical library to be used by those who are to carry on the work he left unfinished. Her ever present interest and generosity are much appreciated.

The Prytanean Society has also presented its traditional donation to the Infirmary.

To keep pace with the developments of socialized medicine and the policy of preventive medicine and hygiene the need has

been suggested of installing a dental office in conjunction with the Infirmary. Many of our large cities have adopted this plan in connection with medical inspection of schools. It permits students to receive at cost first-class dental service. By affording students this privilege it not only conserves their teeth, but prevents many of the constitutional diseases, the result of bacterial invasion of the blood stream from mouth infection due to carious teeth.

The number of examinations, excuses, vaccinations, and operations for both dispensary and house patients has been carefully classified for both sexes, and this classification appears under a separate title, as do also reports from the Department of Hygiene.

Respectfully submitted,

ROBERT T. LEGGE,
University Physician.

EYE, EAR, NOSE, AND THROAT

BERKELEY, July 1, 1915.

To the President of the University,

SIR: This department has spent a busy second year; the major share of the work concerned the eye—external and internal diseases, but chiefly ocular defects producing eye-strain. Chronic nasal obstructions, acute inflammations of the nose and middle ear, and acute sinus involvements have been heavy, due, probably, to an unusual winter.

Of those entering college this year, 42 per cent were troubled with some nasal defect, and about 25 per cent with nasal obstruction. Among an equal number of men and women nasal defects number over two times more in the men than in the women. The per cent of nasal defects in men is 58.9 per cent and in the women 24.9 per cent.

Of the new students 64 per cent were troubled with errors of refraction, 66 per cent in the men and 62 per cent in the women, 10 per cent were unaware of the fact, and one-half of 1 per cent were practically blind in one eye and not conscious of it. Refraction errors were about equally divided among the men and women.

This year the number of prescriptions written for glasses has exceeded that of last year by 190; the total number so far being about 700. As much information as possible concerning the care of the eyes has been offered those seeking relief for eye-strain.

Respectfully submitted,

MILTON H. SCHUTZ,

University Ophthalmologist.

IMMUNIZATION SERVICE

BERKELEY, July 1, 1915.

To the President of the University,

SIR: *Smallpox Vaccination.*—At the beginning of the academic year, 1913–14, the immediate skin reaction after smallpox vaccination was accepted as evidence of immunity. Students who gave this reaction as a result of the vaccination required on entering the university were excused from repetition of the vaccination.

The same plan was followed in the smallpox vaccinations of 1914–15 with most satisfactory results. There were 141 intrants who had neither had smallpox nor been previously vaccinated. Not one of these showed evidence of immunity on vaccination but all developed typical vaccine vesicles. This gratifying record of 100 per cent of successful vaccinations of previously unvaccinated intrants with entire absence of untoward results must be considered wholly due to the exceptional advantages enjoyed by the Infirmary in being able to secure unlimited quantities of fresh vaccine virus.

Of 200 persons previously vaccinated but showing no scars, only three showed evidence of immunity. One of the three had been vaccinated seven times without producing a scar. Two of the three gave a history of a successful vaccination in which the scar had faded. On the other hand eight intrants with a history of smallpox gave evidence of immunity. We may, therefore, conclude that the scar is not essential to immunity, for the immunity may persist after the scar has faded, or repeated vaccinations may produce immunity without creating a scar. If, however, the reaction of immunity is present in a person who has never been vaccinated it may be accepted as evidence of a previous attack of smallpox.

A comparison of vaccination statistics of intrants in 1914–15 with those of intrants in 1913–14 is based on the following percentages:

Intrants	1913-14	1914-15
Requiring vaccination	31%	20%
With history of smallpox	3%	6%
Showing no vaccination scar	19%	16%
Never vaccinated	16%	6%

It is gratifying to note a marked decrease in the number of previously unvaccinated intrants. Improved methods of production of vaccine virus combined with better technique on the part of vaccinators will inevitably increase public confidence in the harmless nature of properly performed vaccination against smallpox.

In July, 1914, an unvaccinated employee in the Department of Grounds and Buildings developed smallpox following a visit to a locality where the disease was present. He was isolated in the Infirmary and the employees with whom he had been associated were vaccinated. No further cases developed.

Tables presenting statistics of the smallpox vaccination for the year will be found with other statistics of the Infirmary on pages 388-409.

Typhoid Vaccination.—Vaccination against typhoid fever was first offered by the Infirmary to all members of the University in the early months of 1913. The vaccine used had been prepared formerly by Doctors Gay and Claypole of the Department of Pathology, and latterly by the State Hygiene Laboratory according to the method of Gay and Claypole. From the records of two years certain conclusions may be drawn regarding this vaccine.

The effects of vaccination with the Gay-Claypole vaccine have been classified as follows:

- A. Slight local reaction: Redness of the arm from 40 to 75 mm. in diameter.
- B. Severe local reaction: Redness of the arm over 75 mm. in diameter.
- C. Slight general reaction: Headache, lassitude, disturbed sleep, loss of appetite, a rise in temperature to 38 degrees C.
- D. Severe general reaction: Chill, diarrhoea, a rise in temperature above 38 degrees C.

The presence of any one of these symptoms has been considered sufficient grounds for classification under the corresponding reaction. A table based on this classification will be found with other statistics of the Infirmary on pages 388-409. In general it is shown from this table that reactions to the vaccine are absent in 75 per cent of persons vaccinated; slight in 23 per cent; and severe in only 2 per cent.

Observations of the typhoidin skin reaction were made on ninety-two persons during the academic year 1914-15. In a number of cases persons vaccinated two years ago gave negative reactions. After a single dose of the vaccine a number of these persons gave positive reactions. In view of this fact we recommend that each person giving a negative typhoidin reaction after the usual three doses of the vaccine, be given additional doses until the reaction appears. Furthermore, each person vaccinated should be warned to be revaccinated in the event of the occurrence of a negative typhoidin reaction at the end of two years, after the original vaccination.

Respectfully submitted,

J. N. FORCE,

Assistant Professor of Epidemiology.

UNIVERSITY LIBRARY

BERKELEY, July 1, 1915.

To the President of the University,

SIR: We have the honor to submit the following report on the University Library for the twelve months ending June 30, 1915.

The accessions of new books were as follows:

By purchase:

	Volumes	Volumes
General fund	8,257	
Alumnus fund	217	
Class of 1887 fund	4	
Class of 1897 fund	1	
Class of 1900 fund	70	
Class of 1902 fund	10	
History I contribution	432	
Denicke fund	87	
Gaelic League gift	4	
Jucksch fund	3	
Knights of St. Patrick gift	46	
Mary Lake Memorial gift	4	
Meyer fund	52	
Moffitt gift	14	
Reese fund	288	
Sather fund	781	
Spreckels fund	19	
By binding of periodicals	1,943	12,232
By exchange		1,694
By gift:		
Thomas Rutherford Bacon Memorial.....	288	
J. C. Cebrian	421	
Mrs. Phoebe A. Hearst	127	
Will Neubauer Estate	81	
Miscellaneous	2,901	3,818

Departmental purchases	5,294	
Total volumes received	23,038	
Withdrawn	114	22,924
Total volumes in library		304,662

The record of serials currently received is as follows:

	June 30, 1914	Added 1914-15	Total
Titles received by purchase	1,192	80	1,272
Titles received by exchange	2,779	269	3,048
Titles received by gift	2,584	581	3,165
			7,485
Titles dropped during year		29	7,456
Unbound pamphlets received, 1914-15..		971	
Dissertations and theses received, 1914-15		695	1,666

No dissertations were received from Germany, which accounts for the decrease from last year.

IMPORTANT ADDITIONS 1914-15

Miscellaneous

- Annales de la société géologique du Nord, vols. 1-31.
 Archiv für psychiatrie und nervenkrankheiten, vols. 1-49.
 Archives de parasitologie, vols. 1-10.
 Austria K. K. geologischen reichsanstalt, Jahrbuch, vols. 1-26.
 Ballad Society. Publications, Parts 1-38.
 Beiträge zur pathologische anatomie, begründet von E. Ziegler, vols. 1-49.
 Blätter für das gymnasialschulwesen, Jahrg. 1-39.
 Froehner. La Colonne Trajane.
 Gazzetta chimica italiana, vols. 1-43.
 Geneva. Société de physique et d'histoire naturelle, Mémoires, vols. 1-37.
 Genoa. Museo civico di storia naturale. Annali, vols. 1-29.
 Institution of Mining Engineers. Transactions, vols. 31-45.
 Jahresbericht über die leistungen auf dem gebiete der veterinär medicin, 21 vols.
 Leonardo da Vinci. Quaderni d'anatomia.

Novitates zoologicae, vols. 1-20.

Nuovo giornale botanico italiano, 31 vols.

Le Radium, vols. 1-10.

Revue d'anthropologie, 4 vols.

Saccardo. Sylloge fungorum, 7 vols.

Société zoologique de France. Bulletin & Mémoires, 45 vols.

Victoria history of the counties of England, 24 vols.

Zeitschrift für infectionskrankheiten der haustiere, vols. 1-14.

Law

American State reports, vols. 70-140.

Delaware Reports, 27 vols.

Interstate commerce commission reports, vols. 1-27.

Louisiana reports, 55 vols.

Mississippi reports, 31 vols.

Gifts.—From an alumnus was received \$1200 for the Alumnus Book fund. From the Knights of St. Patrick, their fifth gift of \$100 for Celtic Books.

Mr. J. C. Cebrían has made two additional gifts of books (September 1914 and March 1915) in Hispanic literature, art and history, totaling 505 volumes. Included were some rare and very early Spanish imprints, and a considerable number of lexicographical and bibliographical works. Among the choice books we may mention the reproduction of Alonso el Sabio's *El tratado de ajedrez* (the Escorial manuscript, dated 1283); the Cervantes in letra bastadilla, published 1892; Bonet's *Arte para enseñar a ablar los mudos*, 1620; the works of Spanish mystics, and Spanish translations of Latin classics.

By bequest of the lamented Professor S. B. Christy his private library (839 bound volumes, and hundreds of pamphlets) now forms the basis for an extensive departmental collection in the College of Mines.

Mrs. Aurelia H. Reinhardt gave (April, 1915) the medical books of the late Professor Reinhardt for similar disposition in the Infirmary.

Mrs. J. C. H. Stut gave the technical books of her husband, about 200 volumes on engineering subjects.

Mr. Julian Elliott presented a file of *La Republica Filipina*, a daily newspaper published 1898-99, at Mandaloyon, P. I.

Several single noteworthy books on fine art have been received: From Mr. P. A. B. Widener the sumptuous *Pictures of the early German Dutch and Flemish painters* comprised in his private gallery; from Mr. John C. Johnson, of Philadelphia, the magnificent catalogue of his paintings and objects of art; from Mr. H. Yates Thompson, of London, *Illustrations of 100 manuscripts* in his library (privately printed); from Mrs. Robert J. Davis, *Lutzow's Art Treasures of Italy*; from Victor Sanson, Paris, *Le livre des fontaines de Rouen* (facsimile of the 1525 edition).

To the University's art collections has been added by the generosity of Mr. Cebrian, a bronze bust of Cervantes, modelled by our California sculptor, John McQuarrie, "after the only authentic portrait, done from life in 1600 by Juan de Jaurigui, which, after being lost during four centuries, was found in 1911."

An interesting photograph of John S. Sargent's portrait of Henry James (before it was slashed by a suffragette at the Royal Academy exhibition), with autographs of Sargent and James, was presented by Miss Julia Heynemann.

Fifteen cabinet size photographs of instructors in the University in 1873 came from Miss F. M. Parker.

Mr. C. H. Dwinelle gave a gold medal presented to John W. Dwinelle (a former Regent of the University) by Rochester City Lodge, No. 226, I. O. O. F., as a token of esteem; also, two copper cents, dated 1783 and 1791, for the numismatic collection.

Inter-library Loans.—We have made 189 loans (387 volumes), nearly 60 per cent increase over the preceding year's loans. We have borrowed seventy-four times (170 volumes), an increase of 32 per cent.

With the large growth of our library in recent years, we are able to meet a greater proportion of demands by our own people, and likewise by Pacific Coast Institutions. By diminishing the aggregate number of calls by the West upon the East, we are repaying, in a measure, our own deep indebtedness to Eastern libraries.

Charles Franklin Doe Memorial Tablet.—In the fall a bronze tablet commemorative of the donor of the library building was placed in the vestibule at the main entrance. The inscription, written by President Wheeler, is as follows:

“CHARLES FRANKLIN DOE

Born August 13, 1833, in Parsonsfield, Maine

Died January 16, 1904, in San Francisco

Son of Colonel Barlett Doe and

Mary Sanborn Doe,

Grandson of Deacon John Doe

He was a quiet man of simple tastes and orderly life. Diligent in business, he dealt honourably with all men. Charity for divergent views and a gentle tolerance toward the beliefs of others tempered the native sternness of his convictions. Shrinking from the social turmoil, he found through books abundant converse with the best who have thought and recorded; and now that he has yielded the stewardship of his goods, his last desire opens the companionships he loved to the use of all the recurring generations of the young.”

Accessions Department.—While the European war has not interfered with our English orders to any considerable extent, it has affected seriously our continental purchases. Aside from those actually on the way at the time, only one freight shipment has been received from our French and one from our German agent since the outbreak of war. New orders for continental publications which it has seemed inadvisable to postpone, have been placed with a New York importer. Those covering books of recent date have been generally filled from stock in New York or obtained by mail from abroad; those covering older books and periodicals, especially items selected from the catalogues of second-hand dealers, usually have been delayed or not filled at all. Early in the year the library took the ground that the ordering of continental publications not urgently needed should be avoided until stable conditions were re-established, and events have proved the wisdom of this policy. Not only are continental publications difficult to obtain, but prices are higher, transportation and insurance charges are much above normal, and bindings

are frequently of inferior quality. As conditions are nearly normal in the English book trade, wholly so in our own, and rather better than usual, from the purchaser's standpoint, in that of Canada, the year has witnessed unusually large accessions of books and periodicals in the English language; a field which several departments have tended to neglect, sometimes for cause but often for reasons much less obvious. There has been notable progress this year in the filling of gaps in the sets of English and American periodicals and society publications. The effect of the war on the files of current serials is treated under the caption *Periodical Department*.

Accessions for the year reached a total of approximately 1000 volumes more than last year, in spite of war conditions and a materially reduced book fund. The increase is due in part to the relatively lower cost of the books purchased, in part to the greater output of the bindery consequent upon a 20 per cent increase in the binding fund, but principally to the unusually heavy demands of the departmental libraries. Books for departmental libraries are purchased from equipment or other funds at the disposal of the departments of instruction and not from the library book fund, the general library acting merely as purchasing agent. Departmental purchasing is increasing to such an extent that the handling of departmental orders now forms no inconsiderable part of the work of the accessions department. The demands come from departments or allied institutions away from Berkeley, such as the Medical Department and Hooper Foundation, which receive no allotments from the book fund; the Law School, which owing to its endowment for library purposes no longer receives an allotment; Agriculture, with its independent federal and state appropriations and other special funds; and a few other Berkeley departments. While the needs of certain of the scientific and technical departments for departmental copies of books which cannot well be spared from the general library must be recognized, the creation of independent collections in other departments seems less justifiable. In some departments the practice seems to have grown up fortuitously rather than by deliberate intent, the books being housed and used in the

general library. The ideal arrangement from an administrative standpoint would be, that books desired by Berkeley departments, except scientific and technical publications to be used in direct connection with departmental work or duplicates of books already in the library, should be purchased and treated throughout as part of the general library. This would result in considerable economy in handling and recording, and the books would be much more generally available. The maintenance of independent collections in most cases seems to serve no particular purpose, and when separately housed their inaccessibility is a source of constant annoyance to would-be users. During the year two such collections, those of the departments of Physical Education and Military Science, have been turned over to the general library, which has also acquired a number of books purchased by Political Science to meet the needs of large undergraduate classes. The Forestry books are shelved and otherwise treated as part of the general library, and the Library Committee of the Department of Agriculture in its meeting of December 22, 1914, took action favoring the transfer of the departmental library to the general library building if adequate facilities should be obtainable in the new portion.

Catalogue Department: Old Catalogue Division.—The steady progress of work in this division has been impeded somewhat by irregularity in the receipt of books consequent upon war conditions. This situation has made possible the accomplishment of many small tasks which have waited upon a period of relaxation. Classes 61c, 682c, 102, and 308t (old classification) have been book-numbered, and work on the rare books of the Weinhold collection has been completed. An author card has been inserted in the public catalogue for every book in a departmental library outside of Berkeley, except that of Lick Observatory, not duplicated by a book in the general library or in a campus department. This covers the Medical School, the College of Dentistry, Hooper Foundation, the Citrus Experiment Station, the University Farm at Davis and the Department of Anthropology. Heretofore these libraries have been represented in the general library only by shelf-lists, not in all cases complete.

The following table shows the ground covered by the division :

	Titles	Volumes	Continua- tions
General Library	10,027	12,105	6,955
Copy for Library of Congress.....	113	113	.....
Citrus Experiment Station	185	312	.....
Department of Medicine.....	250	326	.....
Department of Anthropology	110	163	.....
	<hr/>	<hr/>	<hr/>
	10,685	13,019	6,955
Total volumes			19,974
Total titles			10,685

The division continues to maintain the catalogues of the departmental libraries of Architecture, Law, Mining and Zoology, and is preparing for the Department of Agriculture an author list of the books at the University Farm and the Citrus Experiment Station.

Catalogue Department: New Catalogue Division.—Work has been completed during the year on new classes H–HG, corresponding approximately to classes 300, 315–327, and 332 of the old classification (Social sciences: General, Statistics, Economic theory, Economic history, Transportation and Communication, Commerce, and Finance), and is in progress on class HJ (Public finance—old classification 328). The number of volumes recatalogued was 9,460. Current accessions in the previously completed classes E, F, G, H, and J amounted to 2,287 volumes, or a total for the year of 11,747 volumes added to the reclassified and recatalogued section of the library. The number of cards filed in the new dictionary catalogue was approximately 37,000. Of approximately 7000 titles represented by these figures, printed cards for about 90 per cent have been obtained from the Library of Congress, the University of Chicago Library and the John Crerar Library. Proof for 101 titles has been furnished the Library of Congress, and cards for 274 titles have been printed in Berkeley. Sets of our printed cards have been furnished to other libraries as follows, by gift, exchange, or sale:

Library of Congress	2 sets, complete
California State Library	1 set, complete
John Crerar Library	1 set, complete

Newberry Library	1 set, complete
Harvard University Library	from beginning of 1915
Yale University Library	1 set, complete
Stanford University Library	1 set, complete
Chicago University Library	1 set, complete
Illinois University Library	1 set, complete
Michigan University Library	1 set, complete
Minnesota University Library	1 set, complete

A card for each title represented in the new catalogue is furnished at cost to the California State Library, for insertion in its union catalogue of California libraries.

Cards have been filed in the depository catalogue as indicated in the following table:

	Additions 1914-15	Approximate total
Library of Congress cards	39,458	840,500
Royal Library, Berlin, cards	30,715	117,295
John Crerar Library cards	11,108	112,148
Newberry Library cards	1,019	1,019
Harvard University Library cards	7,679	24,159
University of Chicago Library cards	587	2,917
University of Illinois Library cards	3,776	3,776
University of Michigan Library cards	1,712	1,712
	<hr/> 96,054	<hr/> 1,103,526

Owing to the war no cards have been received from the Royal Library for several months. Cards from the Newberry Library and from the libraries of the Universities of Illinois and Michigan are included for the first time. The Royal Library cards for 1910-13 inclusive are in a separate alphabet, with a duplicate file arranged by year and by university of those representing dissertations. A large number of the older John Crerar cards is still in a separate file, to which have been added back files of Harvard and University of Chicago cards; an attempt made to incorporate this file with the main depository catalogue progressed no further than partly through the letter A, owing to pressure of current filing. For the same reason very little progress has been made with the preparation of reference cards for insertion in the depository catalogue; part of the letter C was covered, and the completed work now includes A-Craig.

The progress of the work of this division has been very seriously handicapped by the illness and subsequent resignation of Miss Philena R. Sheldon, senior assistant, in December, and Dr. Edwin Wiley, classifier and head of the division, in March. As financial considerations prevent the filling of Dr. Wiley's position before July, 1916, little advance should be anticipated during the coming year. The division will devote itself to the completion of subject H, the handling of accessions in the reclassified sections, and the reorganization of the new catalogue in accordance with a programme recently determined upon, involving the abandonment of certain form headings and consequent reduction of labor in future. Another move in the direction of economy of labor is the abandonment of the idea of a complete official catalogue for staff purposes in favor of a very much abridged instrument for the sole use of the cataloguers.

It is unfortunate that the reclassification and recataloguing of the library, necessarily a tediously slow process under our conditions, should be dragged out still longer by failure to provide the necessary funds, even to the extent promised as a condition of the undertaking. The culmination is the failure to provide for a successor to Dr. Wiley, leaving the division without a head and postponing any advance for a year. The situation must be faced in the near future and either the annual appropriation increased sufficiently to permit the work to be pushed to a conclusion within a reasonable time—a decided economy over the present system—or the undertaking and the previous investment abandoned. Work was begun in July, 1912, as an experiment, in a certain specified field. Most of this field has been covered; probably all of it, including accessions to date, will be covered within the original estimate of cost. But owing to the growth of the collection in all directions—20,000 to 25,000 volumes a year—we are today, from the standpoint of the whole library, further from the goal than when we started. The other universities engaged in similar undertakings—Yale and Chicago—are proceeding with a more comprehensive plan at a much greater annual cost, and are making headway. It is beyond question that our whole library, to be reasonably usable, must be reclassi-

fied and recatalogued. The plan adopted in a limited field has proven feasible and should be extended to the entire library. This involves a considerably increased expenditure for a certain period of time. The most effectual way to shorten this period will be to do the work while the collection is small. The collection increases about twice as fast as the present recataloguing staff can work. If the staff were doubled it would just hold its own; if quadrupled the entire library would be covered in twelve years. These are rough figures, but serve to illustrate the nature of the problem and the most effective way to solve it. The question is between relatively light expenditure now and heavy expenditure later, with everything favoring the former alternative.

Reference and Loan Departments.—Use of the reading room continues to increase. As a last resort, four small tables seating thirty-two persons were installed last fall in the delivery hall at the east end, near the depository catalogue. The reading room and delivery hall together accommodate 600 readers at times of greatest pressure. A new reading room on the east side of the building, forming an L with the present room and connecting with it, is provided in the tentative plans for the completion of the library.

Inquiries requiring research were handled by the reference department in the following numbers:

July, 1914	1,520
August	1,021
September	1,692
October	1,664
November	1,497
December	882
January, 1915	1,210
February	1,403
March	1,528
April	1,523
May	518
June	1,068
<hr/>	
Total	15,526

The afternoon period is the heaviest, inquiries received amounting roughly to one-sixth more than in the morning period and nearly three times as many as at night.

The reference librarian and her assistants could devote more time to these inquiries, and to other activities such as those mentioned in the last report (separate page 9), if relieved from the continual fire of questions regarding the use of the catalogue. It is of the highest importance from every standpoint that students be thoroughly drilled in the use of the principal library tools, particularly the public catalogue. This instruction cannot be given by the reference department as at present organized without detriment to other interests. The heavy loss of books from the reading room is unquestionably due in part to the frequent absences from the room of the reference librarian and her assistants, who are supposed to supervise it, in order to answer questions about the catalogue. A special trained assistant should be on duty from 9 a.m. to 5 p.m. at the public catalogue to explain its use and answer questions concerning it. This assistant would file all cards in the catalogue, reducing the chance of error and economizing the time of the cataloguers, who now do this filing. Any member of the library staff working at the catalogue is subject to constant interruption, so that much time is now lost by the cataloguers over and above that actually spent in filing cards. The plan of an assistant in charge of the catalogue has been tried with pronounced success at other libraries where the pressure is certainly no greater than with us.

Circulation statistics, not including periodicals issued from the periodical room, for the year 1914-15 are as follows:

1914	Day use	Home use	Overnight use	Total
July	7,541	5,588	357	13,486
August	5,519	4,279	151	9,949
September	17,938	6,821	691	25,450
October	19,451	7,218	737	27,406
November	18,805	6,709	839	26,353
December	10,785	5,713	637	17,135

1915				
January	13,717	6,345	262	20,324
February	20,046	7,794	718	28,558
March	23,858	8,747	822	33,427
April	23,037	8,265	946	32,248
May	4,681	3,346	264	8,291
June	4,539	3,757	108	8,404
<hr/>				
Total	169,917	74,582	6,532	251,031

251,031 July, 1914-June, 1915.

200,183 July, 1913-June, 1914.

50,848 Increase for year 1914-1915

The superintendent of circulation reports:

“These figures show an increase of 25 per cent over the circulation for the year ending June, 1914. The circulation for the month of April, 1915, was 31 per cent greater than that of April, 1914. Comparisons of the records for other months show some even greater increases, notably March, 1915, with a total circulation of 33,427 volumes—an addition of more than 37 per cent., to the circulation for March, 1914.

“Since July, 1914, books reserved at the loan desk and issued for day use on signed slips have been handled apart from other books issued for day use. The loan desk reserve collection consists of books frequently called for, such as dictionaries and grammars, and class references which for any reason could not safely be left on the open shelves for reserved books in the reading room.

“At one time during the year there were over one thousand books in this collection. The circulation of loan desk reserves, included in the day use statistics given above, was as follows:

1914		1915	
July	2,929	January	7,920
August	2,443	February	12,757
September	11,533	March	15,071
October	12,169	April	14,193
November	11,703	May	1,688
December	5,826	June	1,758

Total 99,990

“The system of issuing books for vacation use referred to in the report for the year 1913-14 remains in force and has proved satisfactory.”

Up to June 30 of this year 479 students had made application for vacation privileges; 499 had applied by the end of the vacation. In 1913-14, 503 students applied. Recall notices involving fines, that is, for vacation-use books allowed to become overdue, were issued as follows:

	1913-14	1914-15
1st notice	43	31
2nd notice	7	8
3rd notice	0	2

Shelf Department.—The record of the year's shelving compared with that of a year ago is shown in the following table:

	1913-14	1914-15
No. vols. shelved in main stack, approximately	202,000	242,000
No. vols. shelved in reading and seminar rooms, approximately	18,000	20,000
No. vols. reshelved due to reclassification, approximately	12,000	9,200
No. vols. reshelved due to crowded condition of stack, approximately	60,000	200,000
Total	292,000	471,200

During the year it was determined to change the system of shelving in the main stack. Each of the five stack floors is bisected by an aisle running from east to west, at right angles to the stack bays. In the numbering of the bays, those north of the dividing aisle constitute row 1, those south of the aisle row 2. Under the shelving system originally adopted, books were shelved in each row from east to west, so that the sequence interrupted at the west end of row 1 was resumed at the east end of row 2, distant the entire length of the stack. The new system provides that the numbers in row 2 shall run in reverse order to those in row 1, so that the sequence interrupted at the west end of row 1 shall be resumed at the west end of row 2, immediately across the aisle. This system will prevent any considerable separation of related subjects. The contents of the third stack floor have

been rearranged according to the new system, and the other floors will be undertaken as rapidly as the routine work of the department permits.

For the first time since the occupation of the present building in the summer of 1911 the books in the main and periodical room stacks and the seminar rooms have received a thorough cleaning, and an overhauling with a view to necessary repairs and re-binding.

The annual inventory shows 53 volumes missing from the stack as against 199 volumes last year. The improvement is due in part to the new plan by which a small section of the stack is checked each day for misplaced books; the stack is covered in this manner about six times a year in addition to the complete checking of the annual inventory, now taken in vacation rather than continuously throughout the year. Another reason for the improvement is probably the letter sent last February, with the approval of the Library Committee, to every member of the Faculty and to every holder of a stack permit, regarding these losses. Four hundred and eighty-three letters were mailed, to which 363 replies were received. None of the missing books were recovered directly, but the reminder probably resulted in a more careful regard for the rules governing the use of the stack and the removal of books therefrom. Losses from the stack might be further reduced and the charging of books by those having stack privileges facilitated, by placing on duty at the entrance an attendant who would see all persons entering or leaving the stack, visé all permits, charge all books which readers in the stack might wish to take out, look after readers using restricted material at the tables in the rear of the loan desk, and handle all of the varied business arising within the stack, the intrusion of which on the regular loan desk attendants at busy times causes confusion and delay. To be effective this system of supervision should be in operation whenever the library is open. To cover our daily schedule of fourteen hours two additional attendants would be required.

During the year 49 books were reported lost by readers; most of these have been replaced and paid for by the losers. One

hundred and thirty-four volumes have disappeared from the reserve shelves in the reading room and 42 from the regular reading room collection; a total of 176 volumes taken from the open shelves as against 190 volumes last year (160 from reserve and 30 from the reference shelves).

The map catalogue covering all separate maps belonging to the general library has been completed; it embraces about 12,000 cards in geographical arrangement and will be kept in the map room. An alphabetical list of the same material is in preparation for the reference department. All foreign dissertations, except those in certain scientific and technical fields which are sent regularly to the interested departments, have been checked and placed in pamphlet boxes, arranged alphabetically by institutions and sub-alphabetized by author. They fill about 900 pamphlet boxes. Progress is reported in the arrangement and listing of pamphlets, begun during the year, and in the listing of unbound college and university publications.

Periodical Department.—The effect of the European war on this department has proved less severe than was anticipated. In the case of subscriptions, service from the continent has been slow and irregular, though few actual breaks have occurred in important files. Most of the German and French periodicals which ceased publication at the outbreak of the war have resumed, sometimes reduced in size, and have closed their gaps, often by combining several issues in one with appropriate numbering. Publication has been interrupted to a considerable extent among those irregular serials, the parts of which are paid for as they appear. Some \$1000 saved through reduced charges in this field has been used to bring up arrears in binding.

The war has more seriously affected those European serials obtained by gift or exchange. Few of the former and almost none of the latter have been received from the countries under arms. While this condition is doubtless due in part to cessation of the international exchange service of the Smithsonian Institution, and to that extent will be remedied when this service is resumed, many publications of universities, academies and learned societies have been suspended indefinitely. The situation points

the need for a thorough revision of serial records as soon as stable conditions are re-established.

Without attempting to follow the lead of some great American libraries in gathering everything in print relating to the European war, the general library has secured an interesting collection through selective purchase. This has been supplemented by donation of a mass of material, mainly pamphlets. The more important of these have been bound and catalogued; the rest are shelved as a separate pamphlet collection, after being listed on cards at the reference desk.

For some years it has been the policy of the library to restrict the circulation of serials indexed in Poole and the Reader's Guide, on the ground that they are valuable and necessary reference tools, like encyclopaedias and dictionaries, which should be available in the library at all times. The restriction works a certain hardship, which becomes acute in those cases in which the best recent material in English appears in indexed publications. Here the material most valuable for reference purposes is precisely that most in demand for home use. To relieve the situation, it has been deemed advisable to duplicate certain of the more important files for circulation. During the year the following duplicate sets have been secured:

- American political science review.
- Annals of American Academy of political and social science.
- Educational review.
- Johns Hopkins University studies.
- National municipal review.
- Political science quarterly.
- Quarterly journal of economics.

It is planned to extend the building of this duplicate collection over a considerable period, to avoid excessive drafts on the annual appropriations for books.

Exchange Division.—On September 1, 1914, the library formally took over the handling of exchanges from the University Press. As the library budget contained no provision for stenographic or secretarial assistance for this division, the burden of additional correspondence was carried by the librarian's secretary

in addition to her regular work; the installation of a dictaphone making this possible, though subject to irritating and sometimes damaging delays. The assistant in charge reports as follows on the work of the division since September 1:

“The total number of institutions on the list on July 1, 1915, is 1231, as compared with 1200 in June, 1914. Thirty-nine names have been added since the library undertook the work and eight have been dropped.

“The number of volumes received in exchange since September 1 is 1440. . . . The periodical department reports 267 new serial titles added by exchange. . . . A systematic effort has been made to widen the scope of our exchange activities in South and Central America, China and Japan, particularly in the matter of obtaining official documents, in which we have been greatly assisted by the United States consuls in the several capitals. The Japanese government has been particularly courteous in its willingness to send all its documents to the library regularly henceforth. An exchange agreement has been effected with the Canadian Library of Parliament whereby this library will be a regular depository for the Sessional Papers of Canada; the first consignment of 31 volumes for the session of 1914 has been received.

“The most obvious use of the exchange bureau in the library has been its work as a division of the accessions department, by which that department has been able to ascertain definitely the possibility of obtaining material by gift or exchange before placing its orders. Aside from this routine business and the current correspondence necessary to maintain the exchange list at its present size, the work has been directed along three main lines, with a view to obtaining (1) state documents, (2) municipal documents, (3) miscellaneous gift material.

“1. In the matter of securing state documents, the endeavor has been to establish definite exchange agreements with a few of the most important state libraries whereby we may receive regularly all official publications of the state. In other cases we have sought to obtain from the several branches of the government only those documents which are of particular interest in certain university departments. In this way the library maintains files

which represent all the states in such important documents as railroad and insurance reports, labor statistics, geological surveys, educational reports, etc.

“2. A greater proportion of time has been spent in building up a collection of municipal documents for which the reference department reported a more immediate need. Requests were addressed to a limited number of cities with a view to obtaining current official publications regularly in the future. American cities were chosen (*a*) for their size and importance, (*b*) for progressive methods of administration and form of government. When possible definite exchange arrangements have been made with the municipal reference library, but in most cases the documents are the gift of city officials. With the co-operation of the consular service, publications were secured from some of the chief cities of Great Britain and Germany. . . . The unbound municipal material already in the library was separated from miscellaneous periodical publications and filed with the new acquisitions in pamphlet cases, so as to be readily accessible. A card list of the entire collection has been prepared for the convenience of the reference department and will be kept in the reading room.

“3. Miscellaneous gift material has been secured chiefly at the request of individual members of the faculty and by the systematic checking of current periodicals such as the *American Political Science Review*, *American Economic Review*, *American Journal of International Law*, the *Survey*, the *New Statesman*, *National Municipal Review*, *American City*, *Pacific Municipalities*, *Nation*, *Athenaeum*, *Publishers' Weekly*, etc.

“One of the chief difficulties of the division has been the lack of suitable material for exchange with social agencies, municipal reference libraries, specialized economic libraries, etc.; institutions whose publications on subjects of current interest are needed in the library, while our publications in pure science, philosophy, history, philology, etc., have little interest for them. The results of investigation in hygiene and sanitation would be valuable material for exchange purposes, and would call attention to a branch of the University's work which is seldom recognized. Publications from the department of Political Science would also be of

great assistance, as would more frequent reports from the Economics department, the last paper issued in this series having appeared two years ago."

For valuable assistance in the collection of foreign government publications and those of foreign municipalities thanks are due Mr. F. W. Carpenter, formerly of the United States diplomatic service. Mr. Carpenter is now engaged in securing from or through the foreign commissioners in charge of exhibits at the Exposition, material desired by the library.

Departmental Libraries.—The annual inspection and inventory of departmental collections covered twenty-one departments; twelve others were not fully covered owing to unsatisfactory conditions existing therein. An attempt will be made to eliminate these difficulties during the coming year by negotiation with the departments concerned, and it is hoped that these negotiations may lead to the merging of some of the smaller collections with the general library as recommended in this report last year (separate page 14). The inventory of twenty-one libraries showed 153 volumes missing, of which 142 were departmental books and 11 general library books on deposit. These shortages have been or will be reported to the proper authorities in the departments concerned, and the general library books replaced at departmental charge in regular course.

During the year cards were filed in the public catalogue for the books in the Medical School in San Francisco, and for those at the University Farm at Davis and the Citrus Experiment Station at Riverside not already represented in the general library or in a Berkeley department. At the request of the College of Agriculture, the general library is compiling a card list of books purchased for the Farm and the Citrus Experiment Station. The College proposes to maintain a card record of all books in its field belonging to the University, wherever housed.

Cards representing the author entries in the catalogue which is now being made in the Bancroft Library have been brought together, and after being collated with the Bancroft catalogue will be stamped "Bancroft" and incorporated in the new public dictionary catalogue. For the future, provision has been made

whereby a card for each title entered in the Bancroft catalogue shall be inserted in the dictionary catalogue of the general library.

Library Staff.—The following changes have occurred in the staff of the library since June 30, 1914, probationary service not included:

Appointments:

Evelyn Steel, senior assistant, August 28, 1914.

Harry J. Rowe, senior assistant, October 21, 1914.

Mrs. Ethel Sherwood Bucher, senior assistant, November 1, 1914.

Gertrude E. Phipps, senior assistant, February 15, 1915.

Robert J. Usher, superintendent of circulation, December 30, 1914.

Charles A. Sweet, junior assistant, July 20, 1914.

Helen A. Brandt, junior assistant, August 1, 1914.

Aileen Coombs, junior assistant, October 1, 1914.

Maude H. Horn, junior assistant, October 1, 1914.

Maude H. Horn, junior assistant, March 1, 1915.

John F. Phelps, attendant, September 1, 1914.

Resignations:

Edwin Wiley, classifier, March 31, 1915

Carleton B. Joeckel, superintendent of circulation, December 5, 1914.

Bertram Smith, senior assistant, October 1, 1914.

Philena R. Sheldon, senior assistant, December 31, 1914.

Mrs. Charles L. Limes, junior assistant, July 31, 1915.

Elizabeth Lowry, junior assistant, October 24, 1914.

Marie Tollefson, junior assistant, November 30, 1914.

Maude H. Horn, junior assistant, December 27, 1914.

Lost and Overdue Books.—During the year the losses from the reading room amounted to 134 reserve books and 42 volumes from the permanent reading room collection: 14 volumes less than last year. These figures cover only the books missing on June 30, 1915; the large number taken for periods of varying length and returned before the final count it is not feasible to record, although such petty pilfering during the time a book is in demand by an entire class, especially during examinations, is a source of constant annoyance and hardship. The annual inventory showed 53 volumes missing from the stack. During the summer session of 1915 reading room losses amounted to 37 volumes from the reserve shelves and 5 volumes from the reference collection as

against 18 and 5 volumes respectively for the summer session of 1914; a difference no doubt attributable to the greatly increased registration in the session of 1915.

Analysis of the heavy losses from the reading room during the first semester—103 volumes—indicated the necessity for certain changes in the permanent open shelf collection. All translations of classical and foreign texts, the originals of which are in use in University classes, have been sent back to the stack, and it may be necessary to follow the same course with the works in English and American literature. The books reserved for certain courses in which depredations were especially numerous were checked daily during the second semester, and losses reported at once to the instructors concerned. In most cases the instructors read these reports to their classes with appropriate comments. Probably as a result of these measures the losses for the second semester were cut down to 50 volumes; a 50 per cent improvement, but at the cost of a heavy additional burden on the reference and shelf departments.

The periodical department reports an unusual number of mutilations, particularly in the files of art magazines and others handsomely illustrated. Periodicals to which students are referred in connection with class work, technical periodicals, and, strangely, cheap popular magazines such as McClure's, have also suffered heavily. Thirty-eight mutilated issues were discovered during the year; some of recent date, but others in older bound volumes. Some of the latter it has not been possible to replace. These mutilations occurred in files kept in the periodical room on open shelves. In consequence one file has been sent back to the stack and others may follow, though at the cost of considerable inconvenience to readers and staff.

In the spring semester an attempt was made to round up such missing library books as in the course of years might have drifted into the various rooming and student organization houses. The Dean of the Lower Division and the President of the Associated Students offered cordial co-operation, and instituted correspondence with the proprietors of the rooming houses listed by the University and with the presidents or managers of all organ-

ization houses. As a result many books, some of which had been given up as permanently lost, found their way back to the library.

As stated above, the circulation for the fiscal year reached a total of over a quarter million volumes. The number of books retained overtime and subject to penalty was comparatively small. The figures by months are given below:

1914	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1st notice (25c fine)	228	186	442	451	343	334	
2nd notice (50c fine)	21	43	43	51	54	63	
3rd notice (\$1.00 fine)	1	9	3	9	10	15	
	—	—	—	—	—	—	
	250	238	488	511	407	412	
1915	Jan.	Feb.	Mar.	Apr.	May	June	1914-15
1st notice (25c fine)	216	379	507	485	183	238	3,992
2nd notice (50c fine)	48	51	53	67	27	75	596
3rd notice (\$1.00 fine)	4	6	5	17	20	9	108
	—	—	—	—	—	—	
	268	436	565	569	230	322	4,696

Library School.—The summer course in library methods was conducted by Miss Faith E. Smith, Director of the Training School in the Chicago Public Library, assisted by Miss Coulter and Mr. Mitchell of our staff, Miss Marion L. Horton, librarian of the John C. Fremont High School, Oakland, and several special lecturers, including Miss Harriet G. Eddy, County Library Organizer of the California State Library, Miss Mary E. Ahern, editor of "Public Libraries," Mr. George B. Utley, secretary of the American Library Association, and Miss Martin and Mr. Bumstead of this library. Miss Smith, who was also Director in the summer of 1912, in the light of her former experience instituted some changes in the plan of the course, incorporating certain subjects, such as Work with Children and High School Libraries, not hitherto treated. From about one hundred applicants, twenty-seven were admitted to the course, one of whom was obliged to withdraw from considerations of health, while two others were deterred by other duties from remaining for the final examinations. All of the others received certificates of satisfactory completion of the course.

The students in attendance represented four county, five college, eight city, and five school libraries and one mercantile subscription library; and three were university graduates without previous library experience. One of the latter will join our staff this summer.

Library Conference.—The thirty-seventh annual conference of the American Library Association was held at the University of California June 3–9. The attendance register contained 779 names. The staffs of the University and of the Berkeley public libraries constituted the local committee in charge. The session opened formally on the evening of June 3rd with the address of the president, Mr. Miller C. Wellman of Springfield, Mass., preceded by a few words of welcome from Regent Livingston Jenks and followed by an informal reception in Hearst Hall. In addition to the five general sessions in the Chemistry Auditorium, there were numerous meetings of sections and of affiliated organizations in various University buildings. Headquarters were established in the periodical room of the library for the Association and affiliated organizations.

The general opinion seems to have been that the conference was a success. On the lighter side, a programme of entertainment was devised and carried out by the staff of the Oakland Free Library, and the Exposition occupied all spare moments. The cost of entertainment was defrayed by the personal contributions of a number of California librarians, and the University Library assumed most of the other expense. This library published for distribution to the delegates a pamphlet describing the building, the Official Program of the conference, the Advance Attendance Register, and a leaflet indicating the methods of getting to and from San Francisco and the Exposition and containing a list of San Francisco restaurants. The library also prepared a pamphlet entitled "The Library at the Exposition; a Survey," which was published and distributed by the Exposition authorities.

At the final session a resolution was adopted reading in part as follows:

"The American Library Association, at the conclusion of its thirty-seventh annual conference, the fourth on the Pacific Coast and the third in California, desires to express its grateful appreciation of the many services and courtesies that have made the success of the conference possible.

"To our hosts, the authorities of the University of California, our thanks are due for the use of their buildings for headquarters and for general and special sessions, for their many acts of hospitality, and for the beautiful opening reception. In particular we owe much to the staff of the University Library . . . for their care for our comfort in the local arrangements."

At the meeting of the California Library Association held in connection with that of the A. L. A., the associate librarian was elected president and Miss Coulter secretary-treasurer for the ensuing year.

Financial Statement.—The library budget for 1914-15 carried appropriations totaling about \$390 less than last year, as follows:

Salaries	\$26,110.00
Assistance	20,000.00
Books	25,000.00
Binding	5,000.00
Expense	4,000.00
<hr/>	
Total	\$80,110.00

The appropriation for Books consists of the following items:

Income from gift funds restricted to specified	
uses	\$3,100.00
Income from Reese fund (general)	\$2,800.00
University appropriation	19,100.00
<hr/>	
	21,900.00
<hr/>	
	\$25,000.00

Distribution of \$21,900:

Current periodicals and postage	\$6,000.00
Purchase and completion of serial sets	3,000.00
Works of general interest	1,500.00
Librarian's fund	1,500.00
Special allotments	360.00
Departmental allotments on unit basis	9,540.00
	<hr/>
	\$21,900.00

During the year \$3000 was transferred from Salaries to Assistance (the term used to designate that portion of the staff not holding Regents' appointments); \$1000 from Books (current periodicals) to Binding; and \$509 from Books to Expense to cover the cost of a new and enlarged edition of Library Bulletin No. 12, the Rowell Classification, which is now in press.

Respectfully submitted,

J. C. ROWELL,
Librarian.

HAROLD L. LEUPP,
Associate Librarian.

LICK ASTRONOMICAL DEPARTMENT

LICK OBSERVATORY

MOUNT HAMILTON, July 1, 1915.

To the President of the University,

SIR: I have the honor to submit herewith my report for the period June 1, 1914, to June 30, 1915.

During the academic year two volumes of the *Publications of the Lick Observatory* and sixteen numbers of the *Lick Observatory Bulletin* have been issued.

Volume XI of the *Publications* is entitled "Photographs of the Milky Way and of Comets made with the Six-inch Willard Lens and the Crocker Telescope during the Years 1892 to 1895, by E. E. Barnard." This volume contains 129 full-page plates, descriptions of the plates, and an introductory chapter on the instruments and methods used. The photographs, in addition to their high intrinsic value, are of unusual interest because they represent pioneer work in the fields of Milky Way and comet photography. They were, in fact, the first great successes in those fields.

Volume XII of the *Publications* is entitled "Measures of Double Stars made with the Thirty-six inch and Twelve-inch Refractors of the Lick Observatory, from June, 1895, to December, 1912, by R. G. Aitken." In addition to measures of 1200 selected double stars, including long series of measures of all the more interesting visual binaries in the northern sky, the volume contains Mr. Aitken's studies of the orbits of ninety-three double star systems, twenty-six of these orbits having been computed by him.

Both volumes of the *Publications* have been well received by astronomers.

Experiments are now under way to determine the best processes and conditions for the reproduction of many representative solar-eclipse photographs obtained by our expeditions in the years 1893, 1898, 1900, 1901, 1905, and 1908, preliminary to the publication of the photographs and accompanying texts in volume form. Similar experiments are being conducted upon the photographs of Halley's Comet. The mechanical reproduction of these two sets of photographs offers difficulties demanding patient effort to overcome.

The instruments of the Observatory, both principal and minor instruments, are, with one exception, in excellent condition. The Willard and Dallmeyer photographic lenses, which are carried by the Crocker equatorial mounting, are supplied with wooden camera boxes and wooden plate holders. These have always been affected by moisture and flexure changes and, in addition, it has been difficult to maintain rigid connections between the two wooden cameras and the guiding telescope, which are arranged in parallel. New camera boxes and plate holders for the same, and new connections between the cameras, the guiding telescope and the Crocker equatorial mounting have been designed by Mr. Curtis for construction in aluminum. The driving clock for the Crocker mounting has always been difficult to control, and changes to remedy the defect have been designed. It is expected that the new cameras and the improved clock will be available for observation in the early fall months of 1915.

Several of my reports of the past ten years have referred pointedly to the fact that the thirty-six inch Crossley reflector, so widely and favorably known from its important contributions to astronomical knowledge, and still an exceedingly useful instrument, is rapidly becoming one of the relatively small reflecting telescopes devoted systematically to research. Several reflecting telescopes varying from forty-two inches to one hundred inches in diameter are now in use by or are under construction for other observatories. It is our frequent regret that answers to important questions are limited in value and sometimes wholly prevented by the small scale of the nebulae and other celestial objects as photographed by the Crossley reflector. A reflecting

telescope, comparable in power with those under construction elsewhere, should be added to the equipment of the Lick Observatory. It seems to me that the State of California should be asked at the next session of the Legislature to make a liberal appropriation to cover the expense of designing and of the first year's work of constructing such a telescope, with the understanding that the next succeeding Legislature would appropriate funds for the completion of the telescope, its dome and accessories in the following two years.

We have many minor needs:

1. The two brick reservoirs on Kepler Peak, which form one-half the capacity for the storage of drinking water, have suffered damages from our three severe earthquakes, and they call for annual repairs. They should be replaced by a steel tank, if possible of larger capacity. The small wooden reservoirs at the spring in the south canyon are uneconomical and they should be replaced by a steel tank.

2. The present inefficient and dangerous method of heating scientific buildings, shops and residences by individual stoves in nearly every room should be replaced by a central heating system, utilizing hot water or steam, on the basis of a special legislative appropriation for this purpose. A modest building, to contain the central heating apparatus, the distillate engine which generates electric current, the storage battery, the instrument-making shop, the carpenter shop, and the forge should be provided by the same appropriation.

3. The elevating floor in the dome of the thirty-six inch refractor has been operated for twenty-seven years by hydraulic machinery. This system is giving trouble, frequent adjustments have to be made, the elevating motion is very slow, and it contains an element of danger from the possible breaking of the counterweight cable connections. Similar floors in other observatories are operated safely, rapidly, and economically by electric motors. The system should be transformed to use electric power.

4. A Zeiss stereocomparator. We have been hoping to secure this instrument for fully ten years past.

5. A photo-electric-cell photometer, to which enthusiastic reference has been made in preceding reports. It is impossible longer to doubt that this photometer has become one of the astronomer's most sensitive and important instruments for the study of variable stars. The atmospheric conditions existing at Mount Hamilton are especially favorable for the work of this photometer, in that the sky is very clear and that the long series of continuously clear nights gives to the observations the continuity so highly valued.

6. Three additional assistants, to relieve the astronomers from many duties which could be performed satisfactorily on the basis of smaller salaries: one assistant for night duty, at \$1200, and two plate measurers and computers at \$1000 each.

Mr. Campbell and Mr. Curtis were absent from Mount Hamilton during the period June 10 to October 10, in connection with the William H. Crocker Expedition to observe the total solar eclipse of August 21, 1914, in Russia. The observing station was established at the northern edge of Brovary, a town of approximately 6000 inhabitants lying twelve miles east of the city of Kiev. The instruments reached the observing station in perfect condition, and the mounting and adjustment of them proceeded rapidly, thanks to the abundance of volunteer assistants who accompanied the expedition from this country. The president and prominent members of the astronomical society of Kiev gave invaluable help in selecting the observing station and in making the necessary arrangements with the local government officials, as well as in the securing of needed supplies. They also served as assistants in the observing programme of the eclipse phenomena. All preparations were complete several days in advance of the eclipse date.

It early became apparent to us that the chances for clear sky at the time of the eclipse, 2:30 p.m., were very slight, owing to the peculiar and very definite distribution of cloudiness with reference to the hours of the day. Our residence of five weeks at the observing station was characterized by beautifully clear nights, mornings and evenings, and by cloudy days. Cumulus clouds began to form in the absolutely clear sky at 9 or half past

9 o'clock in the mornings. They increased in number and area to a maximum at 2 or 3 o'clock p.m., and then diminished gradually to a clear sky at 5 or 6 o'clock p.m. This cycle of cloudiness repeated itself from day to day, and there were no days following the 22nd of July on which the sky was continuously clear.

It appears that the diurnal curve of cloudiness described above repeated itself more or less faithfully at all of the points along the eclipse path, from northwestern Russia to the Crimea on the southern border, as reported by the observers with whom we later communicated. There was nothing in the published reports of August cloudiness in Russia to lead us to suspect in advance that maximum and heavy cloudiness was due to occur at the approximate hour of the eclipse. Such knowledge would absolutely have prevented the organization and dispatching of the Crocker Expedition.

All of the instruments and all of the observers were prepared to carry out the details of the carefully arranged programme of observations, but the sky was densely clouded at the time of the eclipse, and our disappointment was complete.

The dismounting of the instruments and the preparations for the return trip were completed on the afternoon of August 25. The existing war conditions caused us very little inconvenience at the eclipse station. By the time we were ready to travel one passenger train per day was leaving Kiev for Moscow, but no freight was accepted by the railways. An exception was made in the case of our eclipse instruments, thanks to the intercession of prominent amateur astronomers in Kiev. The military commandant of the district placed a freight car at our disposal on the siding at Brovary, and, after our instruments were on board, the car was connected with the daily passenger train and dispatched free of charge to the Russian National Observatory at Pulkova, where Director Backlund had most generously acceded to my request to give our property safe storage until the close of the war. The instruments are, to the best of my knowledge, still there. My numerous letters making inquiries have apparently failed to reach the observatory officials.

The members of the expedition returned via Moscow, Petrograd, Finland, the Baltic Sea, Stockholm, Christiania, Bergen, the North Sea, Newcastle and London. It is a genuine pleasure to acknowledge the kindness and assistance of the government officials of Russia, including Professor Backlund. The transportation officials were likewise kind and considerate on every occasion.

The thirty-six inch refractor has been used approximately three nights per week, on the average, during the past year in continuing the spectrographic observations of nebulae, to determine their motions of approach or recession. This work was in charge of Dr. Moore during the four months that Dr. Campbell was absent on eclipse duty. One hundred and seven photographs of nebulae were secured in the year. The exposure times have varied from two hours up to eighteen hours, depending upon the brightness of the spectrum. Greatly improved efficiency has been obtained in the recording of the exceedingly faint nebular spectra by the use of three-prism dispersion and a camera only five inches in focal length, instead of the one-prism and sixteen-inch camera combination which had been used with advantage on the brighter spectra. In the case of those fairly large nebulae whose spectra contain bright lines the exposure times, with the three-prism and short-camera combination, were reduced to approximately one-sixth the length needed with the one-prism and long-camera combination.

Messrs. Moore, Paddock, Green, and occasionally Father Selga, have co-operated in making the long and tedious exposures on the nebular spectra. The measurements and reductions have been made by Mr. Moore and Miss Hobe.

Similar observations of the southern nebulae (Messrs. Wilson, Sanford, and Scott on duty) have been made to the number of seventy-two in the past year by the D. O. Mills Expedition.

The total number of nebular velocities observed to date in both hemispheres is ninety-two. Twelve of these relate to nebulae in the Magellanic Clouds, and these we shall describe separately, for special reasons. Of the eighty observed nebulae not in the Magellanic Clouds, seven extended and irregular in form have average velocities of approach or recession amounting to 10 km

per second; and seventy-three planetary, or regular-form, nebulae have motions of approach or recession averaging 39 km. per second. Thirty-four of the observed nebulae have very small angular diameters, and their average rate of approach or recession is 50 km. per second. As mentioned in last year's report, the extended nebulae seem to be comparatively at rest with reference to our stellar system, whereas the planetary or regular nebulae are traveling many fold faster than the stars.

It is of interest to determine whether the nebulae observed, considered as a system of bodies, are at rest or in motion with reference to our stellar system. Assuming that our solar system is traveling through space toward the point whose co-ordinates are Right Ascension 270° and Declination $+30^\circ$, the planetary or regular-form nebulae give a velocity of 20.1 km. per second for the solar system. Two hundred and twenty-five Class B (very blue) stars had given 20.2 km. per second. The seven extended nebulae give a velocity of 20.7 km. These results render it exceedingly probable that these nebulae, while their individual motions are very high, are, as a system, at rest with reference to our stellar system. The results afford no reason to doubt that these nebulae are true members of our stellar system.

Mathematical discussion of the observed velocities of the nebulae indicates that they, like the bright stars, prefer to move along lines which make small angles with the line joining Kapteyn's two preferential vertices. It therefore seems that these nebulae partake of the characteristic motions known as star streaming.

The relation between the individual observed velocities of the nebulae and the numbers which partake of those velocities makes it clear that the distribution of velocities does not follow the probability curve, as is approximately the case for the blue stars, but that the motions of the nebulae have peculiarities not possessed by the blue stars in general.

Only one bright-line nebula is known to exist in the Lesser Magellanic Cloud. Its observed velocity is 149 km. per second, recession. Of the nineteen bright-line nebulae known to exist in the Greater Magellanic Cloud we have observed the radial veloc-

ities of twelve, all of which lie between the limits 237 and 287 km. per second, recession, with an average of 262 km. per second. Inasmuch as bright-line nebulae are unknown in the surrounding regions of the sky, it is a fair assumption that all of these objects are within the structure of the two clouds. It is therefore probable that the velocity of the Greater Cloud, with reference to the stellar system, is approximately the velocity of the twelve nebulae observed within it, or 262 km. per second, recession. The observed velocity for only one object in the Lesser Cloud is hardly sufficient to justify an analogous hypothesis for it. However, the similarity in the appearance of the two clouds and their proximity to each other lead to the strong suspicion that a more or less intimate relationship may exist between them. Furthermore, the great distance of these objects from the Milky Way, coupled with their high velocities with reference to our system of stars, lends strong support to the hypothesis that the Magellanic Clouds are isolated cosmic units, systems which have no apparent connection with our own stellar system.

On moonlight nights, and at other times when faint nebular spectra could not be observed to advantage, the telescopes and spectrographs at Mount Hamilton and Santiago have been devoted assiduously to determinations of the radial velocities of stars not hitherto observed for this purpose. One hundred and eighty-four such observations have been obtained at Mount Hamilton with one-prism dispersion, and fifty-seven observations with three-prism dispersion. Two hundred and forty stellar observations have been obtained at Santiago with one-prism dispersion, and fifty-six observations with two-prism dispersion. A small number of observations at each station refer to the extremely red stars, known as Class N stars.

In order that the radial determinations of stars may proceed with the full capacity of the thirty-six inch refractor, an additional observer is an absolute necessity. Funds for his employment are not at present available.

Dr. Aitken has used the thirty-six inch refractor on four half nights per week throughout the year for the measurement of double-star systems already known and in searches for new double

stars. He discovered 124 new pairs, and made 704 complete sets of measures of double stars which relate to the newly discovered pairs and to a selected list of close and difficult binary systems known to be in rapid orbital motion.

The Lick Observatory Double Star Survey was completed early in the year 1914 by Dr. Aitken, in so far as the survey can be conducted with advantage from Mount Hamilton. It extends from the North Pole of the heavens to 14° south of the celestial equator for the winter sky and to 22° south of the equator for the summer sky. The survey was planned, in all its essential features, by Mr. Aitken early in the year 1899, and his observations upon the survey began on April 20 of that year. Three months later it was mutually agreed by himself and Astronomer William J. Hussey, then an astronomer on the Lick Observatory staff, that the two observers should co-operate in the prosecution of the survey. Professor Hussey's first observation on the survey was made on July 18, 1899, and his duties in this connection extended to May, 1905, when he resigned to accept his present position.

The first result of this great piece of work has been the discovery of 4300 double-star systems, nearly all of which have angular separations of less than $5''$ of arc. Of this number, Mr. Aitken has discovered 2972 pairs and Mr. Hussey 1328. The results secured by all previous observers of double stars had shown that one star in thirty-six, on the average, consists of two or more suns in close proximity. The observations of Messrs. Aitken and Hussey have shown that, of stars as bright as 9.0 visual magnitude, one in eighteen, on the average, is double.

Mr. Aitken's motive in originating the survey was not the mere discovery of new pairs of stars. He desired to secure reliable data for a statistical study of double stars. In the past year he has entered upon this study. This study is not yet complete, but certain results may be stated in a purely preliminary way.

Although one star in eighteen, on the average, of those as bright as 9.0 magnitude is a close double star, visible in the thirty-six inch refractor, the ratio varies with the magnitude, rising to

one star in eleven for stars brighter than 6.0 magnitude, and descending to one in twenty-two for the 8.6 to 9.0 magnitudes, inclusive. This result, now established quantitatively, was not unexpected, a priori, inasmuch as the brighter, and therefore on the average nearer, stars should permit us to separate the two components of those which are double more readily than in the case of the double stars among the fainter, and therefore on the average more distant, stars. It is also found that the ratio is greater for the stars in and near the Milky Way than for those in the neighborhood of the North Pole of the Milky Way, the ratios being 1 to 16 and 1 to 21.5, respectively. It further appears that there is a well marked relation between the angular separations and the numbers of double stars. There is a gradual increase in the number of pairs as the angular distance between components diminishes. This points to the fact that double stars with small linear separations of the components are more numerous than those whose components are more distant from each other. It is probable that other valuable conclusions will result from the thorough discussion of the observational data.

It is very unfortunate that financial conditions have not permitted us thus far to carry out the proposal that Dr. Aitken should extend the double-star survey to the South Pole of the sky by means of an expedition to the Southern Hemisphere. Leading astronomers in many countries have expressed the hope very strongly that Dr. Aitken should have the opportunity to complete the survey which he designed and inaugurated.

Dr. Aitken observed the faint satellites of the planet *Uranus* with the thirty-six inch refractor on nine nights in the summer of 1914. These were secured at the request of Professor Struve, of the Royal Observatory of Berlin, who is using them in his investigation of the orbits of these satellites.

My last report referred to the co-operative plans of the Allegheny and Lick observatories for testing the photographic method of determining accurate positions of the faint stars. Our share in the plans related to the securing of meridian circle observations of 600 of the brighter stars distributed uniformly throughout the zone lying between 2° north and 2° south of the celestial equator.

Mr. Tucker had secured 1260 of the necessary observations in the period January to May, 1914. The remaining 2700 observations were secured from June, 1914, to January, 1915. The computations for one-third of the observations have been completed to date. The remaining calculations are under way. It is expected that all of the observed positions will be ready for use in December, 1915.

Mr. Wright has been engaged chiefly in studying the relations between the spectra of the gaseous nebulae and the spectra of the so-called early type (very blue) stars. It has been found that the nuclei of those small nebulae known as planetary nebulae contain bright lines characteristic of the Class O, or Wolf-Rayet, stars. One nucleus, that of nebula N. G. C. 40, exhibits seventeen well known Wolf-Rayet bright lines in addition to those due to hydrogen. The nuclei of the other nebulae observed are not so rich in bright lines, but, barring a single case, all of them contain some of the bands characteristic of the Wolf-Rayet type of spectrum. The scope of the investigation has broadened out into a study of the distribution of the light in the nebulae, and much information has been secured as to the order in which the different elements, such as helium, nebulium and hydrogen, enter into the central nucleus of the object, presumably with the progress from the nebular to the stellar stage of existence. Mr. Wright's recent observations have made it probable that some of the fainter lines in the nebular spectrum, hitherto but little observed, are identical in chemical origin with certain lines in early-type stellar spectra and usually attributed to certain elements existing in the Earth.

These investigations undoubtedly bear with great weight upon questions concerning the order of evolution from the nebulae to the stars. It is hoped that they may be extended and amplified through the use of more efficient apparatus. A very large reflecting telescope is the desideratum which every observer familiar with the requirements of the problem would mention. A large-scale image, free from the effects of chromatic aberration which enter into all images formed by a refracting telescope, is essential. It is expected that some additional efficiency is obtainable with

the Crossley reflector. A grant of \$500.00 from the Draper Fund of the National Academy of Sciences has made it possible to provide a suitable mounting for the quartz spectrograph attached to the Crossley reflector. This has been designed by Mr. Wright and is now under construction in our instrument shop.

Dr. Curtis has conducted the principal programme of observations with the Crossley reflector as a basis for studying the proper motions of nebulae and star clusters. From October, 1914, to June, 1915, he secured 175 photographs of nebulae and clusters. These have been, in about 90 cases, repetitions of the photographs made in the years 1899 to 1906 by Director Keeler and Dr. Perrine. The average interval between the two sets of plates is about thirteen years. The positions of well defined points of structure in the nebulae and the positions of surrounding stars have been measured with a view to determining whether there has been any motion of translation or of rotation in the interval between the two surveys. The programme is now nearly complete, both as to the taking of the plates and as to the measurements and reductions. A few cases of appreciable motion of translation are suspected but not definitely established. Conclusive evidence of rotational motion has not been found. The general results are in confirmation of the view that the nebulae concerned are extremely distant. The period of thirteen years is entirely too short to let their motions be determined, though we know that the nebulae in general are rapid travellers through space. The investigation has been seriously embarrassed by the fact that the photographs secured with the original Crossley mounting are not comparable in excellence with those obtained with the new mounting.

The programme followed by Messrs. Keeler and Perrine has been appreciably extended, chiefly by the inclusion of those nebulae whose radial velocities are being secured with the Mills spectrograph. For the most part, these are nebulae of small angular diameter, whereas earlier observers were chiefly concerned with the larger nebulae. The extension of the programme will be highly valued by our successors who will use the results as starting points for determining the proper motions of these objects. A

combination of the proper motion, as yet unobtained, with the radial velocities of the same objects, already determined, will enlighten them as to the average distances of these bodies.

In addition to night observing and day measurement of spectrograms, Dr. Paddock has completed an extensive paper dealing with formulae suitable for the determination of spectroscopic binary star orbits whose eccentricities are very small, for systems in which the spectrum of one component alone is visible, or those in which the spectra of both components are visible. He has applied his methods to a determination of the orbit of the spectroscopic binary, Upsilon 4 *Eridani*. Mr. Paddock has also carried through an extensive investigation for determining the source of the systematic differences which exist in results for the velocities of stars obtained with both two-prism and three-prism spectrographs at Santiago. The differences, which concern the fainter stars of classes G, K, and M, have long been recognized by us to exist and Mr. Paddock has shown that the source lies in the assumed wave-lengths employed in forming tables for reducing the measures, and that it is probably an effect of the blending of neighboring spectral lines when the low dispersion of two-prisms is employed.

Comets have been observed for accurate position as follows:

Comet *f*, 1913—

5 nights, Nicholson

1 night, Shane

Comet *c*, 1914—

11 nights, Aitken

7 nights, Nicholson

Comet *e*, 1914—

1 night, Aitken

Comet *a*, 1915—

5 nights, Aitken

Dr. Aitken's measures were of immediate use to the Berkeley Astronomical Department as the basis for computing preliminary orbits of the comets named. All of the observations will be utilized later in the more definitive computations.

Dr. Joel Stebbins, Professor of Astronomy in the University of Illinois, and formerly a Fellow in the Lick Observatory, is now at Mount Hamilton as a Special Investigator. He and his colleagues in Illinois have been occupied with making improvements

in the photo-electric-cell photometer. He desired to test this photometer, attached to our twelve-inch refractor, under the great advantages of the very clear sky, the uniformity of clearness throughout the night, and the succession of clear nights, which characterize our summer conditions. Two of these instruments have recently been used in German observatories, and their results, combined with Dr. Stebbins' observations of well known variable stars this summer, abundantly confirm the belief that this sensitive instrument is going to contribute enormously to our knowledge of variable stars and of stellar conditions in general, by virtue of its high accuracy, reliability and speed. I can think of no more desirable field of investigation for the Lick Observatory, with its atmospheric conditions ideally adapted to the requirements, than that of extensive and systematic study of variable stars by means of a photo-electric-cell photometer, attached, as may be required, to the twelve-inch or thirty-six-inch refractors, or, in special cases, to the Crossley reflector. An investment on this basis promises returns as rich as any recorded in the history of astronomy.

Dr. W. W. Coblentz, member of the staff of the United States Bureau of Standards, Washington, D. C., was a Special Investigator on the staff of the Lick Observatory during parts of the months of July and August, 1914. He brought with him special and very delicate electrical apparatus, designed by himself, and known as a thermopile, which he attached to the Crossley reflecting telescope for the purpose of studying the radiations which reach us from the brighter stars. The combination of the Crossley reflector as a powerful collector of star light and of the thermopile as a sensitive detector of radiant energy, proved to be very efficient and reliable. It was found possible to make accurate measurements of the radiations from stars as faint as 6.7 visual magnitude. A powerful method, capable of wide application to stellar problems, both general and special, was thus placed at the service of astronomers. Coblentz has since shown that the sensitivity of the apparatus used at Mount Hamilton can be increased one-hundred-fold. While his work here was in the

nature of a preliminary survey, to test the possibilities of the instrument, the measures made on 105 stars gave definite results of decided value. It is easy to see that a rich field of stellar-spectrum investigation lies open to those who will have opportunity to use Coblentz's thermopile in connection with a telescope of large light-gathering power.

Professor S. D. Townley, of Stanford University, made many trips to Mount Hamilton in the summer and fall months of 1914 and in May and June, 1915, in the capacity of Special Investigator. His work embraced the study of certain recently discovered variable stars. He employed the Pickering wedge photometer attached to the twelve-inch refracting telescope. He made about 560 complete sets of observations on six variables, each set of observations consisting of either sixteen or twenty-four photometer measures of a variable and several surrounding comparison stars. In addition to these, sixty-three sets of observations were made upon stars in the *Pleiades* group, in order to test the accuracy and constancy of the photometer. The results are nearly ready for publication. Dr. Townley proved that the variable star bearing the number 6.1914 passes through its cycle of changes in 13.803 hours and in such a manner that it belongs to the type technically known as "Cluster Variable." He showed also that the variable, 10.1914, is of the Algol type, with the two component stars revolving around their mutual center of mass in a period of approximately 4.75 days. The observed variations are due to the eclipse of one star by its companion.

Dr. Townley's work was assisted by a grant from the Gould Fund of the National Academy of Sciences.

Mr. S. B. Nicholson, instructor in the Berkeley Astronomical Department, spent the summer vacation of 1914 in residence at Mount Hamilton as a Volunteer Observer in the Lick Observatory. Mr. Nicholson devoted his attention principally to photographic researches with the Crossley reflector. His results include photographic positions of comet *c*, 1914, on six nights, photographic positions of the satellites of *Uranus* on five nights, and a long series of photographic positions, not yet published, of the faint

satellites of *Jupiter*. When examining the photographs of the Eighth Satellites of *Jupiter*, taken on the nights of July 21 and 22, the image of an unknown faint object was observed near that of the Eighth Satellite. Additional photographs to record this object were taken in July, August and September, 1914, and Mr. Nicholson's measures and computations, based upon them, disclosed the fact that this object is a satellite of the Jovian system. This is the Ninth Satellite of *Jupiter* to be discovered and the fourth to be discovered at the Lick Observatory. The Fifth Satellite was discovered by Mr. Barnard by visual observations with the thirty-six-inch refractor in September, 1892, and the Sixth and Seventh Satellites by Mr. Perrine in December, 1904, and January, 1905, respectively, from photographs taken with the Crossley reflector. The Ninth Satellite, like the Eighth Satellite of *Jupiter* and the Ninth Satellite of *Saturn*, is in retrograde motion about its planet. Mr. Nicholson finds its period of revolution to be 2.2 years.

The Martin Kellogg Fellowship is filled, for the year beginning with January, 1915, by Dr. Charles Edward Adams, Government Astronomer of New Zealand, who seeks enlarged astronomical experience to prepare him more fully for assuming responsibilities of astronomical research in the southern hemisphere. Among other problems, he has been interested in determining whether it is possible to give long photographic exposures to stars surrounding the Moon and a short exposure to the Moon, upon the same plate, without losing the stellar images through the fogging of the plate by the diffused moonlight. This had been accomplished elsewhere by means of special apparatus which, theoretically, at least, is open to strong objection, because unsymmetrical and unequal areas of the telescope objective were used in recording the images of stars lying in different parts of the field of view. Mr. Adams has accomplished his purpose by the use of a simple occulting device immediately in front of the sensitive plate which enables each star and the Moon to send its light symmetrically through the whole of the telescope objective.

Reverend Miguel Selga, S. J., formerly of Spain, and now under appointment as astronomer in charge of all astronomical

work in the Manila Observatory, has resided on Mount Hamilton during the greater part of the past year in order to prepare himself better for the duties of his position. Among the minor problems with which he has been busy, it may be mentioned that he has determined the period of revolution of the spectroscopic binary star, Sigma Scorpii, to be slightly less than 0.25 mean solar day. He has determined the preliminary elements of the orbit of the brighter component of the system.

Mr. Roscoe F. Sanford, formerly a Carnegie Institution assistant in the Lick Observatory and during recent years an assistant astronomer in the D. O. Mills Expedition to Santiago, Chile, has been appointed Martin Kellogg Fellow for the year beginning August 1, 1915.

Six lectures were delivered before the class in General Astronomy in the Berkeley Astronomical Department in the spring of 1915 by Messrs. Aitken and Campbell.

Mr. Wright has been elected a Foreign Associate of the Royal Astronomical Society of London.

Mr. Campbell was invited to deliver the second course of lectures before the National Academy of Sciences on the William Ellery Hale Foundation; subject: "The Evolution of the Stars and the Formation of the Earth." The lectures were delivered at the session of the Academy in the University of Chicago, early in December, 1914. They will soon be published in the *Popular Science Monthly*.

Much of Mr. Campbell's time, as chairman of the Pacific Coast Committee of the American Association for the Advancement of Science, has been devoted, in the past six months, to the preparations for the meeting of the American Association in San Francisco during the first week of August, 1915, and to the organization of the Pacific Division of the American Association.

Mr. Campbell was elected President of the American Association for the calendar year 1915. He was likewise elected first President of the Pacific Division of the Association.

Mr. Campbell has been elected to membership in the Royal Swedish Academy of Sciences, Stockholm.

The Bruce Gold Medal of the Astronomical Society of the Pacific was awarded to Mr. Campbell for the year 1915.

The Director acknowledges the continued cordial support of the staff, both at Mount Hamilton and at Santiago, Chile.

Respectfully submitted,

W. W. CAMPBELL,

Director of the Lick Observatory.

DEAN OF THE LOWER DIVISION

BERKELEY, July 1, 1915.

To the President of the University.

SIR:—I am sending herewith a report on the work of the office of the Dean of the Lower Division for the year ending June 30, 1915.

On December 1, 1914, Professor Hutchinson, who until that time occupied the position of Dean, left the University on leave of absence. Upon succeeding him in this office I endeavored to carry on the work with as little change in policy as possible. To this end much assistance was rendered by Mr. W. G. Reed, who acted as chairman of the Board of Freshman Advisors during the spring semester.

An investigation of the advisory system was made to determine how it was working and if possible to improve its efficiency. Circular letters, asking specific questions, were sent to all the members of the board of advisors and inquiry was also made amongst upper classmen. It was apparent from the replies obtained that much of the efficiency of the system would be lost unless the number of freshmen assigned to each advisor was kept below twenty. This would require some forty or more advisors. In addition to the difficulty of finding this number of men, qualified and willing to carry on this work with interest and enthusiasm, it was clear that the relationship of freshman and advisor was regarded by a large portion of the student body as perfunctory and artificial and that much of the effort of the advisors, though conscientiously given, was on this account being wasted. While no doubt some freshmen have been very decidedly

benefited by the acquaintanceship with his faculty advisor, I am convinced that this system cannot be made wholly successful unless a more natural relationship between student and advisor can be found. The advisors also act as study-list officers, and it has frequently occurred that the advisor assigned to a particular freshman has not been the one best qualified to give advice on the particular course the student intends to take.

To avoid as many as possible of the above faults in this system, it is proposed that advisors be chosen particularly for their qualifications to give advice on the line of study that the student intends to pursue, and to supervise closely the grouping and sequence of courses to be taken. In the technical colleges, Agriculture, and Commerce, this is done by the Deans or their representatives. In the College of Letters and Science it will be done by members of the present board of advisors teaching in that college. Freshmen should be encouraged to go freely to their faculty advisors and indeed to other members of the faculty, more than they do at present. The required entertainment of freshmen by advisors, which has been customary heretofore, will however be discontinued as a formal part of the relationship.

The men of the senior class have suggested that they undertake the work of assisting freshmen to adjust themselves to the university community and will be organized for that purpose through this office. Each freshman will be assigned to a senior, in his own college. While this assignment is also artificial it is believed that a freshman will go more willingly to a senior than to a member of the faculty. This procedure should tend to strengthen student government in that the freshman will learn early about the customs, traditions, and ideals of the student community from those entrusted to maintain them.

The cordial co-operation of student organizations continues. Trusts and responsibilities placed in their hands are always faithfully executed. The efforts of fraternities and clubs to improve their scholarship has resulted in their average being higher in both semesters, than that of men not affiliated with any organization.

The housing problem is still not altogether satisfactory. Lists of approved boarding houses for men and for women are published twice a year. However, we have found that only about 9 per cent of our men live in approved houses. Clubs and fraternities house 23 per cent, while 45 per cent live elsewhere in Berkeley. The remainder reside outside of Berkeley. A great many proprietors of places, satisfactory in other respects, prefer to run them as mixed boarding houses. The new Housing Code of Berkeley should do much to improve the sanitary conditions of the houses in which our students must reside. Data is being gathered upon the question of dormitories. The large financial outlay necessary for their erection, combined with a necessarily low return of moneys so invested, make the possibility of their establishment here dependent upon a generous endowment.

Respectfully submitted,

T. M. PUTNAM,

Dean of the Lower Division.

MEDICAL SCHOOL

SAN FRANCISCO, July 1, 1915.

To the President of the University,

SIR: I have the honor to submit the following report of the Medical School for the year 1914-1915.

Under the superintendence of Dr. Summersgill the University Hospital has cared for an increased number of patients and advanced materially in its usefulness to medical teaching. The contracts for the new hospital have been let and construction has begun. With the increased number of students more hospital teaching beds are required, and plans for the equipment of the new hospital should be matured in the near future so that it may be available for teaching by January, 1917. Every effort should be made, also, to provide a suitable home and training-school for nurses adjacent to the new hospital. The present quarters are utterly inadequate and militate against the proper development of both hospital and training-school.

On the completion of the new hospital the present building should be reconstructed to meet the needs of the Out-Patient Department, which has become vitally essential in the training of students and which during the past year has made phenomenal advances. During 1913-1914 a total of 35,314 visits were made to the Out-Patient Department, this year the total visits were 55,626, an increase of 57 per cent. This increase in growth was made possible by several factors and the first of these was the increase in space. In January, 1914, the Children's Department was moved from the main building to the basement of the Pharmacy Building, and during the past summer the Medical and Woman's Clinics were moved from the basement to the floor above. These changes have added greatly to the convenience and facilities of the Out-Patient Department. A similar addition of

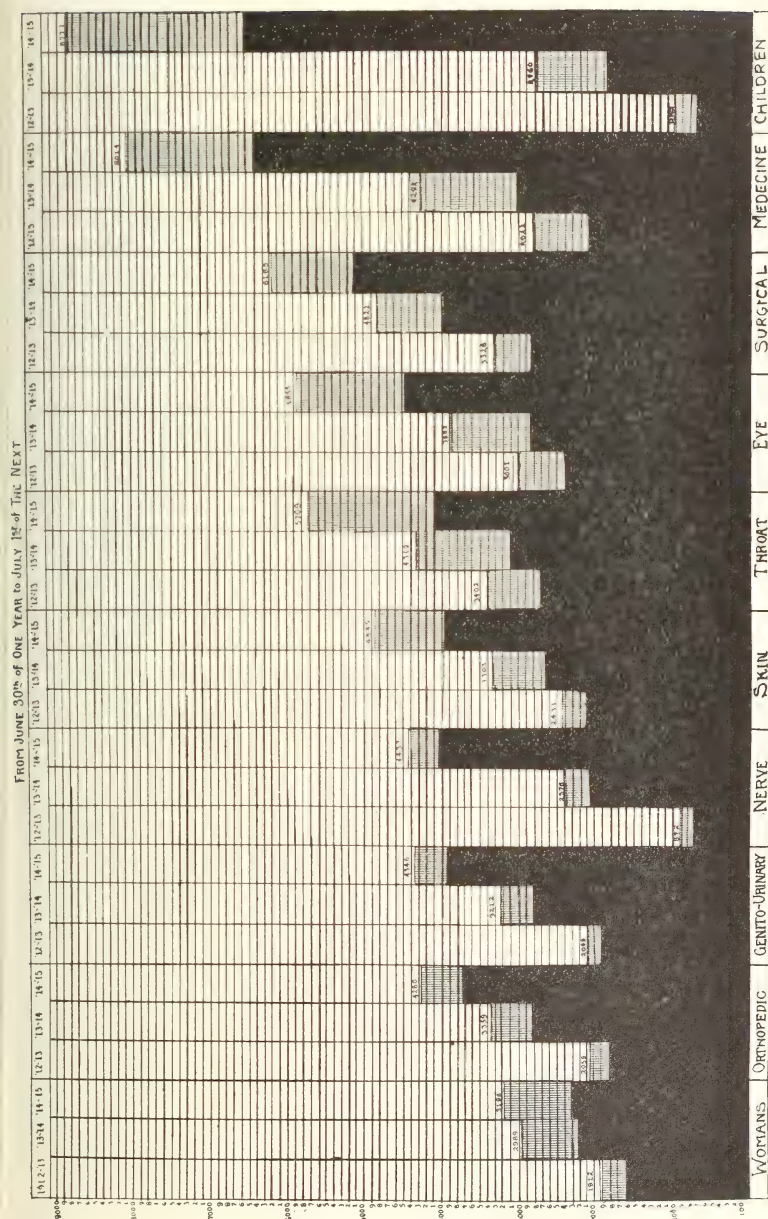
space at the present time would be desirable but, probably, we will have to wait until we enter the new hospital before we attempt further expansion of our Out-Patient Department accommodations. The second factor which has entered into the increase of our clinics has been the adoption of a definite follow-up system. This has been carried out in the Children's Clinic and partially in the Medical Clinic, and these two Clinics show the greatest increase during the past year.

The Medical Clinic has almost doubled in numbers. During the fiscal year, 1913-1914, a total of 4292 visits were made and the present fiscal year there were 8014 visits, an increase of 87 per cent. The Children's Clinic has grown from a total of 2760 visits in 1913-1914 to 8777 this past year, an increase of 218 per cent. No clinic in the Out-Patient Department has failed to make a substantial gain in numbers. The gain in percentage of the other clinics is as follows: Surgical, 28 per cent; Eye, 51 per cent; Throat, 32 per cent; Genito-Urinary, 35 per cent. Orthopedic, 28 per cent; Nerve, 86 per cent; Woman's, 7 per cent; and Skin, 47 per cent. The accompanying chart very graphically shows the increase in the visits to the Out-Patient Department for the three preceding years.

There has been a very marked and encouraging growth in the spirit of co-operation and earnest work by the assistants in the Out-Patient Department, to whom almost the entire credit for building up the clinics is due. It is only by the high standard of out-patient work that our clinics really hold the patients who come to us. We no longer hear complaints that our clinic is out of the way. The high grade medical treatment which we give compensates for the inconvenience of our geographical position.

Our relations with the various charitable associations, especially the Associated Charities, have proved to be of great benefit. We have continued to send reports to all associations sending patients and to have weekly conferences with their workers, which have more than repaid us for the time and expenditure which this co-operative scheme has entailed.

Dr. Louise Morrow, who has had charge of the social service work, has proved herself to be a most efficient head. In the



Children's Department we have had in addition the volunteer services of Miss Hannah Leszynsky, who has given most of her time to the Infants' Clinic. The Department of Social Economics has allowed its graduate students to do field work under Doctor Morrow's supervision and we have had a number of students working with us throughout the school year. Miss Maud Morrison, who has had charge of the prenatal work, has done very efficient work in the clinic. Miss Marian Mel has again given her services throughout most of this year to the Orthopedic Clinic. Her services should be put on a paid basis as the Orthopedic Clinic would suffer materially without her follow-up work.

Active work in the Hooper Foundation has begun under the direction of Dr. Whipple and the stimulus of research work in the clinical departments is already apparent. Opportunities for elective work in research medicine will be offered to senior students during the coming year.

With the active co-operation of the Hooper Foundation and the clinical departments it becomes more and more necessary to have the Departments of Pathology and Pharmacology transferred from Berkeley to San Francisco. A modern building could be erected in line with the Hooper Foundation, back of the new hospital, at a cost of \$125,000. This would consolidate three full teaching years in San Francisco and would be of tremendous advantage to the new hospital as well as to the school.

During the last months the San Francisco Hospital has been formally opened, providing 75 teaching beds for the University Service. Additional clinical opportunities will be available next year by reason of an agreement with the Children's Hospital whereby the material of its wards is offered to the University for teaching purposes.

It is with regret of its entire faculty that the Medical School next year loses the services of Dr. J. Morris Slemons, head of the Department of Obstetrics and Gynecology, who leaves the University to accept the Chair of Obstetrics in Yale Medical School. Under his guidance the teaching of Obstetrics has been placed upon a sound basis and the Department has increased greatly in efficiency during the past year.

DEPARTMENT OF ANATOMY

On account of the absence of Dr. Harvey for the most of the first term and the absence of Mrs. Smith for the latter part of the term, the entire time of the rest of the staff was occupied in teaching. Throughout the second term the present staff has been actively engaged in research.

Dr. Moody has been making an experimental study of the effect of acetone and butyric acid upon the size and development of rabbit embryos.

Dr. Smith has been studying the effect of the hypophysis on the growth and metamorphosis of amphibia. By extirpation and grafts the effect of decreased and increased secretion of the hypophysis upon amphibia is being observed.

Dr. Smith is also working upon the correlation of the function and the development of the ear vesicle and central acoustic mechanism. By changed conditions of development and by operative procedure the relation of the various parts of the acoustic reflex to each other and the effect of environment upon the various parts is being attacked.

Mr. Hurni's problem has been the formation of eosinophile leucocytes in vitro. By means of cultures the problem of whether eosinophiles are formed in the circulating blood and in the tissues, aside from bone marrow, and how they are formed, is being determined.

By a recent action of the Regents Dr. Herbert McLean Evans, until now Associate Professor of Anatomy at Johns Hopkins Medical School, will assume direction of the Department of Anatomy during the coming year. The fact that Dr. Evans is a graduate of the University of California makes his return as one of the foremost of American anatomists peculiarly gratifying to the Medical Faculty.

Respectfully submitted,

ROBERT ORTON MOODY,

Associate Professor of Anatomy; Acting Head of the Department

DEPARTMENT OF PHYSIOLOGY

The work of the Department of Physiology has been carried on during the past few years under difficulties which have progressively augmented as the number of students has increased. This department undertakes teaching which in many medical schools is undertaken by three separate departments, the departments, namely, of Physiology, Biochemistry and Pharmacology, while the staff attached to the department is not larger than that which, in schools having a like number of students and offering a similar grade of instruction, is usually provided for the teaching of the single subject of Physiology. Additional laboratory space is urgently needed for the introductory courses in Physiology which are offered to non-medical students, and for the instruction in Pharmacology offered to medical students.

Notwithstanding these disadvantages, and the severe limitation of available time which their heavy teaching duties have imposed upon members of the Department, the staff and advanced students under their direction have energetically carried forward the work of original investigation and discovery, which they unite in regarding as a fundamental part of their duties and responsibilities. They have not failed to uphold the standard of productivity in research which has been set by this department in former years.

In the field of Physiology, Associate Professor S. S. Maxwell has carried out investigations on the function of the Thymus, Thyroid and Pituitary Glands, which are still in progress, while under his direction Miss Kelly is conducting similar researches, and Miss Hurd is investigating the relation of blood flow to Maximum Voluntary Contraction of Muscle. Assistant Professor Theodore C. Burnett has conducted and has published the results of Researches upon Muscular Tonus and its Relationship to the Sympathetic Nervous System. Instructor Rosalind Wulzen has carried out investigations, the results of which have in part been published, upon the Functions and Secretion of the Pituitary Gland, and Assistant Lillian Moore has conducted investigations upon the Thermogenic Function of the Corpus Striatum.

In the field of Physiological Chemistry and Pharmacology, Associate Professor Robertson has embodied in several monographs the results of investigations on Infant Nutrition and Growth which he carried on during his recent tour of Australia and Europe while on Sabbatical leave. He has also undertaken extensive researches which are still in progress upon normal growth in connection with certain phases of nutrition, and, in collaboration with Assistant Professor Theodore C. Burnett, upon abnormal growth as illustrated by cancer. Some of the results of these latter researches, on the influence of the Anterior Lobe of the Pituitary Gland upon the Growth of Carcinoma in Rate, have appeared in the *Journal of Experimental Medicine*. Under the direction of Associate Professor Robertson, Dr. Koji Miyake, of Sapporo Agricultural College, Japan, has carried out investigations on the influence of Neutral Inorganic Salts upon the Conductivity and Refractivity of Protein Solutions, and Miss Aline Browder has investigated the action of Lecithin and Cholesterol upon the Growth and Multiplication of Unicellular Animals.

Respectfully submitted,

T. BRAILSFORD ROBERTSON,

Associate Professor of Physiological Chemistry and Pharmacology.

DEPARTMENT OF PATHOLOGY

Medical instruction in the closely correlated courses in bacteriology, immunology, morbid anatomy and experimental pathology has suffered little change in general plan during the past year. The elaborate course outline that has been in process of perfection during the past two years has proved of great service and will, it is hoped, be published in more permanent form shortly. These courses occupy the entire time of the departmental staff during the first semester and provide a close-packed curriculum for the medical class, which has now reached approximately forty (thirty-nine in 1914).

Undergraduate instruction in general bacteriology has continued to grow in importance and the registration in the Spring

semester of 1915 reached 201 students as against 133 in 1914. This high level promises for a time to remain fixed, as it depends largely on the enrollment of the College of Agriculture. The Department is just able to deal with this number of students in point of space, time, and present equipment. As regards assistance in teaching, the present staff available for this purpose, one instructor, one assistant and two student assistants, is barely adequate. The responsibility for the instruction in medical bacteriology and undergraduate bacteriology has rested on the shoulders of a single individual during the five years that mark the present departmental regime. In that time the medical classes have doubled and the undergraduate classes increased over 500 per cent. The type of instruction has likewise increased in elaborateness and completeness. The increasing demands on the energy of the Professor in charge in purely teaching work have in a large measure accounted for our failure to hold the last two incumbents (Fitzgerald and Meyer). It has seemed wise to choose and to induce men of productive scholarship to undertake this work, but their manifest inability to secure more than a small part of their time for the pursuit of their own investigations has led each in turn to accept positions affording greater opportunities for self-development. The necessity of securing two ranking members of the department, one for each aspect of bacteriological instruction, medical and undergraduate, has already been emphatically urged in a report concerning the budget allowance for next year, and the present inability to secure this additional support must be regarded as unfortunate.

Technical assistance in the Berkeley laboratory has gradually become more efficient and with the employment of a certain amount of student work may be regarded as adequate for the present.

Graduate courses in research have been elected by eleven students, seven undergraduates and four graduates. In addition, five advanced workers who are not registered in the University have been afforded special opportunities for investigations.

Professor Cooke, in charge of the pathological work at the University and San Francisco hospitals, with the co-operation of Professor Rusk, has carefully analyzed the present status of the practical work in teaching and routine being done in these laboratories and in separate reports they agree that improvements are necessary to make the work as efficient as the clinical staff have a right to expect, and as Dr. Cooke would desire. The amount of autopsies and of material for examinations have increased to the point of abundance so far as teaching is concerned, and likewise to the point of distraction of the present staff. Presented in tabular form, the material has increased as follows:

	1913	1914	1915 (3 months)
Autopsies	68	93	42, or at the rate of 168 per annum
Bacteriological Examinations	365	562	352, or at the rate of 1408 per annum

The needs are as follows:

1. Another technical assistant should be at once provided.
2. Two internes or residents in Pathology should be appointed and given residence and a salary, one at the University and one at the San Francisco Hospital.
3. A small but separate budget should be allowed for the University Hospital Laboratory. The present method of supplying requisitions from the Hospital Superintendent is time-consuming and annoying.

It may again be pointed out that in large measure this increase in staff, which is absolutely essential, could be avoided if the entire Department of Pathology were housed in San Francisco. The prompt provision of a suitable laboratory for the Department in connection with the University Hospital is, in our opinion, the most important need of the Medical School and Hospital at this time.

The monies turned back to the University from students' fees and breakage, has this year amounted to \$2182.20. This considerable sum should be deducted from the amount allowed the Department for expenses and equipment in estimating the actual cost of running the Department.

It is with the greatest sadness and sense of personal and public loss that we record the death of Edith J. Claypole, Research Associate in Pathology. Dr. Claypole came to us three years ago from Pasadena and volunteered her services in the investigation of certain infectious diseases that had interested her as a student of biology and medicine for several years. The Department was able, fortunately, to offer her facilities for her work from the first, and later some appreciation of the results attained in a definite position on the staff. The charm and gentleness of her spirit soon endeared her to all who came in contact with her. Her skill and ingenuity in experimentation gradually led to the accumulation of important data that were critically examined and presented with convincing logic and conclusiveness. At least Edith Claypole lived to know that her work was discussed and appreciated.

But her mind was by no means fixed on her own personal problem. She readily offered her constant co-operation and thought on problems that were first in the minds of others. Although a free-lance in the laboratory, she aided in instruction and willingly took over time-consuming examinations that might help another's investigations, or aid in the treatment of some patient. A woman of rare personality and ability, we feel we shall not see her like again.

It is with a peculiar feeling of appreciation that we learn that friends of Edith Claypole have established a research memorial fund to perpetuate her name and aid in the continuance of her work.

Two members of the staff have left the Department for the Hooper Foundation to enjoy larger opportunities for research than we could afford them. The choice of Professor Meyer and of his assistant, Dr. Christiansen, for advanced investigative work comments favorably on the choice that the department has exercised in filling its positions. We are glad that these men still remain in the University and with fuller opportunities for their expansion.

Ivan C. Hall has been appointed by the Regents to fill the position vacated by Dr. Meyer.

Miss Griffiths, who has become an admirable teacher of both undergraduate and medical students in Bacteriology during the three years she has been with us, has been advanced to the grade of instructor.

Dr. Meyer, in spite of excessive teaching and administrative duties in the absence of the head of the Department, has, through the skillfully arranged collaboration of his assistants and advanced students, brought to completion several pieces of work in bacteriology, dealing for the most part with diseases of animals. Some of these studies are of distinct economic importance. Among them may be mentioned *The Relation of Animal to Human Sporotrichosis*; the *Etiology of Symptomatic Anthrax in Swine*; and an extensive classification of micro-organisms of the typhoid-colon-dysentery group. Although several of these lines of investigation were begun in Pennsylvania while Dr. Meyer was connected with the State Live Stock Sanitary Board, others have been inaugurated while he was with us. In addition to the practical value and novelty of this work, comment should be made on the great thoroughness and scientific accuracy which has always marked Dr. Meyer's contributions.

Professor Rusk has published an article on the *Effect of Benzol Intoxication on the Output of Antibodies* and has in preparation a report on some unusual cases of primary carcinoma of the liver.

Dr. Cooke has published an interesting study of the immunologic reactions in a case of blastomycotic infection. He has been pursuing for some time investigations on the Bacteriology of Leprosy, about which much discussion has arisen.

Professor Gay while absent on leave delivered three lectures in the East. The Harvey Lecture in New York; the Samuel D. Gross Lecture before the Philadelphia Pathological Society, and an address before the Johns Hopkins Medical Society in Baltimore. While working at the Rockefeller Hospital in New York a new method was devised for concentrating the protective substances in anti-pneumococcus serum. This method has since been successfully used there in the treatment of cases of pneumonia and will probably supersede the methods in vogue. The principle

on which it rests may be of similar value in the preparations of specific sera against other infections, a possibility which is at present being investigated in this laboratory.

The method of protective immunization against typhoid fever devised by Gay and Claypole in this laboratory, and the method of testing the duration of protection afforded individuals suggested in collaboration with Professor Force, are now being fully tested under actual conditions in various parts of this country as well as in the State of California. The results attained in California as compared with results from other types of vaccine are at present being summarized by Dr. Sawyer of the State Hygienic Laboratory. More definite results may be hoped for in the case of certain of the Continental armies, to whom vaccines have been supplied by us in an especially prepared form at the request of Sir Wm. Osler of Oxford and of Professor Roux of the Pasteur Institute. Dr. Flexner, Director of the Rockefeller Institute, has interested himself in securing a wider distribution and consequent test of our vaccine for us. The actual labor of preparing large amounts of this vaccine rested largely on Dr. Claypole until her illness and death.

This work on typhoid fever has largely extended to attempts at the specific treatment of the disease. Through the co-operation of physicians in Oakland and Berkeley a considerable number of cases have been seen in the last few weeks and results of interest to us, and often of benefit to the patients, have been obtained. Modification in the treatment which we hope soon to try may give even better results. The unfavorable conditions under which these patients have necessarily been observed make the intimate association of the Department with the University Hospital a matter of critical desire.

Respectfully submitted,

FREDERICK P. GAY,

Professor of Pathology.

DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

The clinical material available for teaching Obstetrics and Gynecology has increased between 30 and 40 per cent during the past year. And, therefore, in spite of a large number of students, the practical instruction of each individual has been broadened. The minimum number of confinements attended by members of the present class has been twelve, and in the case of students especially interested in this subject the number has been twenty-five to thirty.

Corresponding with the increase in the quantity of material there has been a larger proportion of abnormal obstetrical cases and a greater variety of gynecological diseases. A number of cases of unusual interest and worthy of record have been reported in medical publications by various members of the staff.

A systematic study of the question of Scopolamin and Narco-phin Semi-Narcosis during labor (popularly termed Twilight Sleep) has been carried on by my resident, Dr. W. E. Libby, and has been published in the *Journal of the American Medical Association*. Dr. Arthur H. Morse has carried on an investigation of Creatin and Creatinine Metabolism which has yielded peculiarly interesting results, not alone with regard to the behavior of the elimination of these substances in relation to pregnancy and after abdominal operations, but also with regard to their fundamental physiology. Contrary to the widely accepted view, it would seem in the light of his observations that the metabolism of Creatinine and Creatine may be independent. We have also been interested in the study of bacterial invasion of the placenta, for our experience has taught that Placental Bacteria is a notable factor in the mortality of newly born infants.

The instruction given by the Department has been more satisfactory this year, since the changes in the schedule permit us to take up the physiology and pathology of the female generative organs in much closer sequence than was possible formerly. However, we have been handicapped in teaching by the lack of proper

class-room facilities. Other imperative needs are a properly organized departmental laboratory and a more extensive outside obstetrical service.

Respectfully submitted.

J. MORRIS SLEMONS.

Professor of Obstetrics and Gynecology.

DEPARTMENT OF PEDIATRICS

The Pediatrics Department has had a successful and encouraging year. The number of beds has not changed but the material has been of a very much more interesting character. As the Out-Patient Department has grown we have been able to see many more unusual cases and to obtain better teaching material for the students. This has made it possible to diminish the amount of didactic work and to give more bedside teaching. The students have been taken more into the wards as clinical clerks and have also been sent out from the Out-Patient Department to visit homes of sick children. This I feel is a very important departure from the usual teaching, for it gives the students practical home experience in the treatment and management of cases which they would not get in the ordinary hospital work. This work I hope to increase next year and to work out some more definite plan for home visiting.

Through the co-operation of the Obstetrical Service we have taken charge of the infants in the Nursery. This has opened a very interesting field for work in the diseases and conditions of the newborn. Dr. Vivian Belle Appleton has been detailed for this work and with her we are working up all the problems relating to the newborn.

Our connection with the various University academic departments which I started last year, has developed in a very substantial and encouraging way. Our inter-relationship with the Departments of Psychology and Social Economics is now on a permanent basis. Dr. Olga Bridgman is connected with the Pediatric Department and the Department of Psychology. She

will have charge of the graduate students in abnormal psychology. Dr. Louise Morrow will hold a position as lecturer in the Department of Social Economics and will have oversight of the field work of the students from the Department just mentioned. Work in conjunction with these Departments we hope to develop on a broad and progressive basis. We have also been able to co-operate with the Dietetics Department and the Department of Education, which have assigned graduate students for special work in the Children's Department.

Our connection with the Juvenile Court has been made a permanent one. We are now making complete physical and psychological examinations of all cases entering the Juvenile Court. This union has given us an opportunity for teaching and studying abnormal psychology, which I feel is one of the most important advances that has been made. Doctor Bridgman's thesis for her doctorate this year was based on a study of her cases at the Juvenile Court.

With the assistance of Dr. Kate Brousseau, a survey of the Sonoma State Home was made during the summer and fall of 1914, a resumé of which appears in the Biennial Report of the State Board of Charities and Corrections, page 111 and following.

During the spring we made a survey of the Washington Irving School, making a psychological study of all the children in that school who were backward in their school work more than two years. A report of this work is not complete but will be available before the end of the summer. I feel that this connection with the San Francisco Board of Education is a most important one and should give a great deal of material for study and teaching in the future, as it closely relates us not only to the Board of Education but also to the Medical School Inspection of the Board of Health.

We have also carried on three investigations in children's institutions—San Francisco Nursery for Homeless Children, San Francisco Ladies' Protection and Relief Society, and Pacific Hebrew Orphan Asylum—in co-operation with the Board of

Health in relation to the epidemic of diphtheria which has existed in San Francisco throughout the past year.

In this fashion we feel we have filled a very much to be desired function of the State University in working out problems of public health. With the San Francisco Nursery for Homeless Children we have formed a close affiliation, taking charge of their medical and psychological work. Future development along this line will only be limited by the number of assistants that this Department can command, but I feel that it is a most important function for our Medical School to assume, as it brings us into close relation with the larger problems of public health and especially in my Department with child welfare work.

The growth of the Children's Out-Patient Department has been most satisfactory. We feel again the need of larger quarters. This we hope to be able to meet after a fashion by the erection of an outside pavilion which the Women's Auxiliary Board has supplied for the Children's Department. This Board has also undertaken to raise funds for a special nurse to do follow-up work in connection with the Infants' Clinic, which is greatly needed.

As a Department I feel that we have made considerable progress this year, not only in systematizing our teaching and getting a definite amount of research work and study started in children's problems, but also in the co-ordination of our work with State, civic, philanthropic and child welfare organizations. In this way I believe our school will gain a stronger position with the public than by almost any other line of work.

Respectfully submitted,

WILLIAM PALMER LUCAS,
Professor of Pediatrics.

DEPARTMENT OF MEDICINE

As numbers of students increase and courses of study become more carefully prepared and supervised it is more and more evident that the Professor of Medicine should be on a full-time basis. Meanwhile, the Department is fortunate in having secured two full-time instructors, Dr. Kilgore and Dr. Whitney. Largely through their efforts a system of hospital records has been perfected which adds greatly to the efficiency of teaching. Under Dr. Briggs the Out-Patient Medical Clinic has developed most satisfactorily and has become a source of valuable hospital and teaching material.

Realizing the importance to the student and the community of the proper study and teaching of tuberculosis, a department has been organized with Dr. George H. Evans in charge and Dr. Lewis S. Mace as Instructor. The material of the San Francisco Hospital and the Out-Patient Clinic is available for investigation and teaching. Problems connected with the study of syphilis have been placed in charge of Dr. Hans Lissner, as Assistant of the Medical Clinic, and social service work will be inaugurated during the coming year.

Various papers by members of the staff have been published during the year or are now in press. Dr. Moffitt has published two papers dealing with problems of pernicious anemia and diseases of the spleen. Publications by the staff are as follows:

KERR: Case of Pellagra. California State Journal of Medicine.

EBRIGHT: Diagnosis and Treatment of Infectious Endocarditis. Journal of the American Medical Association.

BINE: Treatment of Gastric and Duodenal Ulcer. Bine & Schmoll. California State Journal of Medicine.

BRIGGS: Ventrophilic Blood-picture in Pernicious Anemia. American Journal of Medical Sciences.

Respectfully submitted,

HERBERT C. MOFFITT,
Professor of Medicine and Dean of the Medical School.

LOS ANGELES MEDICAL DEPARTMENT

LOS ANGELES, July 1, 1915.

To the President of the University.

SIR: The Los Angeles Medical Department actively began its work as a "School for Graduates of Medicine" with the appearance of the April, 1915, catalogue. In view of this new departure in the institution's activities, it may not be out of place to review briefly its history.

The Los Angeles Medical Department had its beginning as the "College of Medicine of the University of Southern California," being established as such in the year 1886, and so continuing until 1909, when its faculty, with the consent and sanction of the trustees of the University of Southern California, transferred its property on North Broadway, in Los Angeles, to the Regents of the State University, with the understanding that the State University should use the same for the purpose of conducting a medical school thereon.

It was felt at that time, that the interests of the public health and of medical education in California would be best conserved if the Los Angeles Medical Department, as it was then named, would follow the plan of a number of other institutions in the United States, which, under somewhat analogous geographical and educational environments, had changed their previous curricula from four-year courses to a limitation of instruction in the last two-year or so-called clinical branches. It was believed that such a plan would permit a greater concentration of effort and of funds on the so-called scientific courses of the first two years, which were being given at Berkeley.

As time went on, and in view of the increasing expense of conducting even the last two years, or clinical work, through the installation of full time clinical professors and laboratories, the conclusion was reached by the faculty of the Los Angeles Medical Department that it would be wise to go even one step farther than the above, and avoid duplication of expenditure

of funds at San Francisco and Los Angeles for the work of the same years of the curriculum.

The Los Angeles Faculty accordingly suggested the plan of a school for graduates of medicine, to be conducted at Los Angeles, in lieu of the undergraduate work. The reasons for making this suggestion were, first, that there was a need for such an institution in the extreme west; second, that the environment of Los Angeles with a rapidly increasing population of more than five hundred thousand persons was sufficiently large to warrant the establishment of such a school in that city; third, that the out-patient or dispensary service of approximately forty or fifty thousand patients a year and the massive bedside material of fourteen hundred beds at the Los Angeles County Hospital, which was at the disposal of the department, were ample for the needs of a school for graduates; and fourth, that through the adoption of this plan the funds for undergraduate instruction could be concentrated at Berkeley and San Francisco. It was felt such a division of efforts provided a plan in which a state university in its relation to public health interests was fulfilling its obligations in fullest measure, not only to the entire people of the commonwealth and other states but also at the same time to the educational standards and ends, to which it, as a state university, was committed.

It is therefore a matter of gratification to be able to announce at this time that since the appearance of the April, 1915, catalogue that there have been a goodly number of graduate students in constant attendance; that inquiries from doctors are coming in daily, not only from California but from remote states in the Union; that the clinical instruction to the graduates has gone forward easily, and with profit, to the satisfaction of the doctor students; and that every indication points to the gradual development in a big way of a school for graduates of medicine at Los Angeles, the influence for good of which on general public health work and in increased service to the people through better trained practitioners of the healing art will be appreciable.

Respectfully submitted,

GEORGE H. KRESS.

Dean.

CALIFORNIA COLLEGE OF PHARMACY

SAN FRANCISCO, July 1, 1915.

To the President of the University.

SIR: I have the honor of submitting to you the following report of the College of Pharmacy for the collegiate year of 1915.

We have an enrollment of ninety-eight students. For the purpose of comparing this figure with those of the four preceding years, I append the number of students enrolled during a four-year period: 1910-11, 86; 1911-12, 82; 1912-13, 99; 1913-14, 118; 1914-15, 98. This shows the average enrollment for the past five years to be ninety-six.

The advisability of adopting a four-year high school prerequisite is being considered by the progressive colleges of pharmacy in this country. At the last annual meeting of the American Conference of Pharmaceutical Faculties at Detroit, a resolution urging high school graduation in 1916-17 was held to be desirable and commendable, was approved, but not recommended. I may say at this juncture that the present requirement as adopted by this same organization is one year high school completion. Even this is not universal, one of the leading colleges not assenting to this standard. In order to place clearly the number of matriculants having high school education, I herewith include the following table showing the qualifications of our matriculants for the past five years.

% High school education	Matriculants	First year	Second year	Third year	Fourth year	Date
46%	43	0	12	6	20	1910-11
59%	47	3	10	4	28	1911-12
50%	58	10	11	4	29	1912-13
38%	65	6	17	6	25	1913-14
62%	45	3	14	3	28	1914-15

This shows the average to be forty-nine per cent of matriculants having high school graduation. Accepting the statement that ninety students are required to maintain our college, one may readily see the effect on our powers of independent maintenance if we lessen the number of matriculants too suddenly. When the Legislature sees fit to demand a Graduate in Pharmacy degree as a prerequisite to the examinations of the Board of Pharmacy, the way will be clear for almost immediate action. In the meantime, the directors and the faculty of this college look hopefully for such a desirable increase of standards for entrance.

We have developed in the past year methods of increasing the interest of students by encouraging observation which leads to the identification of drugs, salts and galenicals, believing that with increased facilities and improved methods of presentation there is created an equal interest and response on the part of the students.

Each year the directors aim to better some department in the college. This vacation the chemical laboratory was renovated and all work tables refinished. It is my desire to increase the number of reference and laboratory books at the disposal of the student body by installing a working library in the offices of the different chairs of instruction, so the student can have more extended guidance.

Respectfully submitted,

FRANK T. GREEN,

Dean.

UNIVERSITY PRESS

BERKELEY, July 1, 1915.

To the President of the University,

SIR: I have the honor to present the following report upon the work of the University of California Press for the year 1914-15:

The year 1914-15 has been a critical one for the University of California Press. The University's printing during the year far exceeded the printing facilities available, and the *University of California Publications*, which are particularly the concern of the Press, suffered severely. In addition to delays due to congestion of other work in the University Printing Office, the Press was obliged to withdraw nine or ten manuscripts in January, to comply with a requirement of the Comptroller's Office that the estimated cost of completing work requisitioned by the Press should be kept within the available balance of the Publications budget.

The year's work resulted in the publication of 63 papers (five of these being indexes of completed volumes), in seventeen series, making 2174 pages, with 82 plates. This is the smallest volume of material issued in the Publications series since the year 1909-10, and is about 58 per cent of the output of 1913-14. Twenty-one of the papers published, amounting to 1568 pages and 44 plates, were carried over unfinished from the year before. Of the other 42, contributions both submitted and published during 1914-15, thirty-two (including four indexes of completed volumes) averaged nine pages each, and ten averaged thirty-two pages. Of these ten, seven were advanced on the calendar by special permission of the Editorial Committee, and were issued at

the expense of added delay to other papers. In other words, aside from short papers of from four to sixteen pages, which by rule of the Editorial Committee are given precedence, only *three* papers submitted during the year could be published in regular course.

The year ends with forty-nine papers on the University Press calendar. These range in size from brief contributions to books of several hundred pages. Work is in progress on but five. Seven of the list have been on hand from fifteen to eighteen months, delayed, however, by other causes than congestion in the printing office. The other forty-two are papers submitted during 1914-15, and of these only three (all short papers on the urgent file) are in proof at the end of June.

The cause for this unfortunate situation is the very considerable quantity of printing (quite aside from job printing) ordered for other departments. These other publications, particularly the various departmental announcements (Administrative Bulletin series), the Agricultural Experiment Station Bulletins and Circulars, and the like, are usually required to be issued at a stated time. The material for them generally is not, and in some cases cannot be, sent to the printer sufficiently in advance to allow of routine treatment, and other work must be put aside if these bulletins are to be published on time.

A comparison follows between the bulk of the University of California Publications issued during the year and the bulk of other printing. The number of printed pages (plates counted as pages) and the charges at the University Printing Office (not including cost of cuts, etc.) are as follows:

	Pages	Cost of printing
Administrative Bulletins	2,030	\$9,623.20
University Extension Division	132	297.50
College of Dentistry Lectures	120	170.50
University Syllabus Series	1,008	1,031.25
Academy of Pacific Coast History	178	464.00
Brief Account of the Lick Observatory	40	384.50
Publications of the Lick Observatory	196	999.00
Lick Observatory Bulletins	85	487.25
<i>Carried forward</i>	3,789	\$13,457.20

	Pages	Cost of printing
<i>Brought forward</i>	3,789	\$13,457.20
University of California Chronicle	517	1,234.25
Experiment Station Bulletins	446	5,400.00
Experiment Station Circulars	244	3,148.25
Experiment Station Report	216	2,416.00
	<hr/> 5,212	<hr/> \$25,655.70
<i>University of California Publications</i>	2,556	\$6,690.46

The disadvantage of the Publications series does not lie so much in the number of pages set in type, although they make but 30 per cent of the whole, as in the size of the edition run through the press. The edition of all papers in the Publications series is one thousand copies; of other publications the edition sometimes runs to twenty-five or thirty thousand. It is not possible to show in a brief tabulation the relative demand upon our printing facilities of, say, 2030 pages in twenty Administrative Bulletins ranging from 8 to 360 pages in editions of from 500 to 30,000 copies, and of the papers in the Publications series. The printing office charges, however, would indicate that the Publications were not quite 21 per cent of the printing listed above.

The seriousness of the situation need not be emphasized. The University of California Publications have come to have a very definite value, to the University as representing its scholarly work to the world, and to members of the faculty and advanced students individually, as channels of communication, and in graduate courses as incentives to study. To subject contributions to the several series to long delay in publication means seriously to impair the usefulness of our publications. It is urgently necessary that the equipment of the University Printing Office shall be enlarged, or that, for a time at least, the pressure upon existing facilities be relieved by having some of the University's printing done outside. It is obviously desirable that the first alternative should be chosen, and our own printing equipment enlarged, as the additional cost of having our printing done by outside plants would in one year amount to more than the interest cost of the new investment.

The European war has seriously interfered with the distribution and receipt of publications in exchange. The International Exchange Service of the Smithsonian Institution has entirely suspended shipments to Germany, Belgium, Austria-Hungary, Russia, Servia, Rumania, and Bulgaria, and some parts of France are also inaccessible, these conditions affecting almost three hundred of our exchanges.

During the year the direction of the University's exchanges has been taken over by a new department of the University Library. This change has relieved the University Press Office of a very considerable volume of work which was rapidly becoming too great for proper attention. Under the direction of the Library, exchanges suited to the Library's needs can be arranged with a great saving of time and effort. The University Press retains the distribution of the publications, addresses on the exchange list being added or withdrawn on information from the Exchange Department of the Library.

Aside from the limitations on the foreign exchange list mentioned above, the distribution of the University's publications has changed but slightly since the report for 1913-14. Receipts from sales of publications have increased somewhat, the increase, however, being chiefly from sales of pamphlets outside of the Publications series.

Due to the absence on leave during the second half-year of Mr. Leonard Bacon, editor of the *University of California Chronicle*, the Editorial Committee requested the services of Mr. George R. MacMinn as acting editor, and it is a pleasure to acknowledge the value of his assistance in that connection.

There follow two tables, showing the amount spent during the year on publications issued, and receipts from sales.

Respectfully submitted,

A. H. ALLEN,
Manager of the University Press.

COST OF PUBLICATIONS, 1914-15

	No. of papers	Pages	Plates	Cost
Agricultural Sciences	3	142	11	\$510.84
American Archaeology and Ethnology..	4	204	.....	647.45
Botany	5	140	9	452.32
Classical Philology	2	22	.....	71.50
Education	1	48	.....	106.25
Engineering	2	48	6	203.78
Geography	1	24	5	120.15
Geology	18	238	23	1,000.88
History	2	298	.....	905.04
Mathematics	3	74	.....	443.29
Memoirs	1	60	10	374.75
Modern Philology	1	114	.....	210.00
Pathology	1	8	.....	33.75
Physiology	4	32	1	147.50
Seismographie Bulletin	2	34	.....	130.00
Semitic Philology	1	164	.....	432.56
Zoology	12	524	17	2,234.01
	63	2,174	82	\$8,024.07
Expended on publications in press				\$1,258.98
Syllabus series			\$1,031.25	
Less receipts from sales			757.71	
				273.54
Total expended on publications				\$9,556.59
Office expenses, postage, supplies, etc.				\$1,166.49
Overdraft from 1913-14 charged to 1914-15 ..				1,892.39
Balance of budget unexpended				1,184.53
				\$13,800.00

SALES OF PUBLICATIONS, 1914-15

Agricultural Sciences	\$22.76
American Archaeology and Ethnology	157.24
Botany	68.07
Classical Philology	2.98
Economics	84.60
Education	124.48
Engineering	6.53

Carried forward \$466.66

<i>Brought forward</i>	\$466.66	
Entomology .....	.80	
Geography	22.65	
Geology	108.88	
History	69.10	
Mathematics	7.50	
Memoirs	500.85	
Modern Philology	20.98	
Pathology	4.74	
Philosophy	6.43	
Physiology	47.15	
Prize Essay	2.00	
Psychology	12.34	
Seismology .....	.50	
Semitic Philology	42.50	
Zoology	244.03	
	<hr/>	\$1,557.11
Graeco-Roman Archaeology		57.29
Lick Observatory Bulletin	\$2.00	
Lick Observatory Publications	85.25	
	<hr/>	87.25
Library Bulletin	\$5.03	
Publications of the Academy of Pacific Coast History ..	80.00	
University of California Chronicle	72.92	
	<hr/>	157.95
Alumni Directory	\$9.80	
*Announcement of Courses	462.55	
*Circular of Information	22.44	
*Officers and Students	310.40	
Register	2.50	
*Summer Session Bulletin	79.61	
	<hr/>	887.30
University Calendar	\$113.65	
English in Secondary Schools	5.80	
California Journal of Technology	6.00	
Sundries	88.28	
Syllabuses	856.26	
Weinstock Lectures	90.72	
Zoe	11.79	
State Geological Survey	57.20	
	<hr/>	1,229.70
		<hr/>
		\$3,976.60

* Does not include sales through the Recorder's Office.

SCRIPPS INSTITUTION FOR BIOLOGICAL RESEARCH

LA JOLLA, CAL., July 1, 1915.

To the President of the University,

SIR: I herewith respectfully submit my report for the year July 31, 1914, to June 30, 1915:

Just at present the vitality of the Institution is manifesting itself more conspicuously than usual in physical development. A wharf, an essential element in the building plans fixed upon when the decision was reached to locate on the site now occupied, is in process of construction. Bids had been received and a contract for the work was about to be signed with the Russell, Greene & Foell Company of Los Angeles in August, 1914, when the outbreak of the European war so upset the value of securities and prices of building material that both Institution and prospective contractors were glad to drop negotiations. But in April, 1915, Miss Scripps announced her purpose to give the Institution an additional \$100,000 during the ensuing two years, primarily for development purposes. Because of this it was determined to build the wharf at once. The former prospective builders not caring to enter the competition again, the Mercereau Bridge and Construction Company of Los Angeles, which had been among the original bidders, were given the contract, their figures having been revised somewhat to meet the small modifications in the plans of construction and the new conditions.

The contract, or contracts, for there are four of them—are for a wharf, a salt water pumping equipment, a salt water storage and sedimentation reservoir, and a retaining wall. The wharf

will be 1000 feet long, with a floor width of about 20 feet and 25 feet at the outer end. The piles, two to the bent, will be of reinforced concrete. The bent beams will be concrete, but the rest of the superstructure will be wood.

The contract cost of the wharf and other elements mentioned, and including a small storeroom on the wharf, two sets of davits at the sea end of the wharf, and electric wiring for the structure, will be \$34,002.50. Of this, \$26,954 will be for the wharf itself.

The contract calls for the completion of the entire work in 170 days from May 6th, the date on which the contracts were signed. About November first, consequently, the finished structure should be turned over to the Institution.

The years of delay in reaching a fulfillment of this part of the Institution's plans may have important advantages, for it has enabled us to learn much about the behavior of the sea and movable shore material in this locality. As an example, the wharf is being located three hundred feet farther to the north than it would have been had it been built three years ago. This is because the heavy storms of winter have revealed that smoother and better water can be reached at this point than with the same length of wharf immediately in front of the laboratory.

Again, by the delay the work is now in the hands of contractors who have had the experience of building two other concrete wharves, one at Huntington Beach, the other at Hermosa Beach, California.

In reply to repeated inquiry as to how the wharf is to be used, the general statement may be made that it is expected to perform two wholly distinct functions in connection with the marine work of the Institution. It will furnish a landing place for boats, and it will make possible the obtaining of a better and more ample water supply for the salt water aquaria than is otherwise possible. The pump for the circulatory system will be placed at the outer end of the wharf, consequently well beyond the ordinary line of breakers, and the intake pipe will be about twelve feet from the sea bottom. This will secure a water supply largely free from suspended substances of all kinds which are always present in water at the immediate shoreline, or near

the bottom on a sandy shore like that upon which the Institution is located. There are other important though secondary ways in which it is hoped the structure will be useful, but it is not worth while to dwell upon these now.

Under construction at the present time and part of the new developmental plans are a garage which will accommodate three automobiles, a service building near the entrance to the wharf, and a public aquarium building. These are all small, inexpensive structures which are classed as temporary, but will meet the needs for which intended for a number of years, and will add greatly to the efficiency of the physical "plant". The more ample garage, which will be constructed of corrugated iron, will be an important element in the solution of the transportation problem. The service building and public aquarium, besides being useful in themselves, will serve the further purpose of freeing the research laboratory building of various encumbrances. The combined cost of these three structures will be about \$4000.

During the year there have been built with money coming from the former construction funds a specially constructed "mouse dormitory," costing about \$650, for Dr. Sumner's experimental work, and a small garage at the director's residence. The mouse house is placed in a canyon to the east of the main buildings, the object of thus detaching it being to secure protection from the salt-laden sea breezes, fire, and marauding cats, dogs, boys, etc. It is surrounded by a strong, high wire fence. The building has accommodations for some 1000 mice, together with storeroom for provisions, and ample working space.

While the most objective and easily seen growth of the Institution now taking place is physical, an internal, less striking but not less important growth is going on, largely as an immediate consequence of Miss Scripps' new gift.

From the beginning the ideal and the idea of Miss Scripps and Mr. Scripps, as well as of the scientific director, has been that the Institution should not only carry on investigations but should take positive measures to make the results of those investigations available for the good of the world at large. *Public service through scientific research* has been the watchword.

Any one intimately acquainted with scientific investigators and familiar with the exacting, time-consuming character of nearly all kinds of investigation, knows that this is a difficult idea to put into practice. Most investigators undoubtedly have the more or less positive hope and belief that their work will be useful to somebody, some time, in some way, even though just to whom and when and how they frequently do not venture to inquire very closely.

Some investigators—and it must be admitted that the number, especially in the United States, has been too large—take the ground that the general public is quite incapable of comprehending even the essentials of their work, and so have no legitimate interest in it. The contention is that most of what has some appearance of public interest is in reality a craving for the sensational, or is the expression of a merely passing curiosity; or, so far as there is genuineness at all in it, this is animated solely by the desire of personal advantage, usually economic.

But that love of truth for the investigator's own gratification exclusively is never the whole motive of the investigator is clear from the fact that publication in some form is almost always counted as an essential concomitant of investigation. The written and printed account of one's research, howsoever recondite and hard to understand, presupposes at least a few interested, appreciative readers. It is only a question of the size of the audience to which he would tell his story. An audience of some sort he always wants and expects. And there is little doubt, despite a rather common notion to the contrary, that the great majority of investigators want their work to be widely known—as widely as there is sufficient general intelligence in the community to comprehend its larger import.

From this direction alone, then, and quite apart from the more important consideration of debt to the public because of opportunities afforded, and of the still higher sense of duty in behalf of the general good, the problem of getting the results of scientific investigation before the public is a real one for investigators themselves.

At any rate, whether or not this is true of research men generally, it certainly is of those connected with the Scripps Institution; and as members of the Board of Management of the Institution, they are now resolved to see what can be done with it. The carrying out of this resolution is part of the developmental plans for the next two years, made possible by Miss Scripps' latest gift. The fundamental principle laid down is that whatever is done in the way of popularizing must be strictly subordinate to research. It shall never be permitted to encroach seriously upon investigation. The theory is held that within certain limits, and under certain conditions, popularizing can be done with no impairment, indeed, often with real advantage, to research. For one thing, the design is that the greatest possible saving of the investigator's time shall be practiced by the employment of assistants for tasks that may be as well done by such persons as by the investigator himself.

It is too early to go into the details of what is proposed. Enough to speak briefly of the plan adopted, the execution of which is being now entered upon.

Three quite distinct means of disseminating information are to be used. During the summer of 1916 it is proposed to offer a few formal courses for science teachers and other students already well grounded in the elements of the subjects to be treated. The aim of these courses, so far as concerns the research men who give them, will be primarily to set forth the results which their own studies are arriving at and the methods being employed in these studies.

Formal announcement of the courses will be published during the winter and will be distributed widely, especially to teachers of biology and physical geography. Besides these specialized courses, a general course will be offered to assist teachers in gaining acquaintance with the marine fauna of the region, guidance in this being in the hands of members of the Institution occupied with the aquarium and museum.

A second mode of information giving will be through the public aquarium and the museum. These will be developed with special reference to illustrating the researches being prosecuted

by the Institution. They will, consequently, be made to supplement the specialized courses of instruction offered by the investigators; but it is also designed that the museum shall be a sort of simplified and objectified exhibit of the methods and results of the researches being carried on for the benefit of all visitors to the Institution.

The aim will be to so dispose and describe the installations as to enable visitors to understand that while the Institution is extremely desirous that everybody may know what it is doing and how it is doing it, it still must, in the interest of carrying on the actual work of investigation, hold the research laboratories to be not open to visitors except on special occasions and under special conditions.

The location and design of the new fire-proof library-museum building which it is proposed to erect during the coming year will have these requirements expressly in view.

The third means of popularization to be resorted to is the public press, especially the daily newspaper press. Exactly what course of effort the Institution will take toward promoting better relations between the newspaper and the research laboratory (both surely so vital to modern civilization, even though standing near the opposite poles of it) is not yet marked out. About all that has so far been done is to resolve that some effort in this direction shall be made.

The reasonable solicitude felt by some members of the scientific staff as to this formal entrance upon efforts to publicly disseminate the results of investigation, we hold to be safeguarded by the fact that the policies of the Institution are determinable by a Board of Managers composed largely of investigators themselves. It seems fair to assume that while all acts of the Board are subject to approval by the Regents of the University, in a matter of this kind the purposes of the Local Board would always receive the approval of the superior body.

Again, some apprehension has been expressed that the aid given by the State might be used as an instrument to prevent the Institution from carrying out its research policy and thrusting it into an industrial and pedagogical career, especially if

the Institution itself voluntarily touches these matters. But here we venture to believe ourselves safe, because of our ability to convince those charged with the responsibility of dispensing State money, of the fundamental importance of scientific research, and the obligation of the State to support it. This view we hold with the greater confidence from the fact that the two state appropriations so far received have been accompanied by express official acceptance of these principles.

Mr. P. S. Barnhart has been added to the permanent staff of the Institution during the year, to serve as collector, and, for the present, as curator of both aquarium and museum. Mr. Barnhart's extensive practical acquaintance with the marine fauna of Southern California and his experience in handling boats and in general "field observations" at sea have already made him seem quite indispensable to several of the activities of the Institution.

Mr. H. O. Falk joined the staff in August, 1914, as secretary to the scientific director and assistant librarian. His efficient service in both capacities has resulted in his retention for the ensuing year.

Miss Inez Smith, who has been assistant to Professor Kofoid in his work on the dinoflagellates of the San Diego region, chooses to pass to other fields of labor at the close of her present engagement.

During May and part of June Mr. Holden, from the Museum of Vertebrate Zoology at Berkeley, was employed at the Institution as assistant to Dr. Sumner in the preparation of 400 mice skeletons for the measurements of certain bones, which appear to be undergoing slight modification by the captivity of the animals.

The severe storms of the past winter and spring tore out the kelp beds along the coast to an unusual extent. To obtain accurate information as to the mode and rate of regrowth of kelp, primarily in the interest of utilizing the plant for the production of fertilizers, Mr. M. B. Nichols, teacher of botany in the Oakland High School, and a special student of the seaweeds, has been secured to carry on the study during the summer. He is working

in connection with Mr. Crandall, who is a special agent of the Bureau of Soils of the United States Department of Agriculture for work on kelp and the kelp beds.

Dr. Sumner moved with his family to La Jolla in August, 1914, and the fact that he was obliged to locate in the village and not on the Institution campus, in order to have school facilities for his children, brings conspicuously to the front one of the important questions with which the Institution is confronted on the side of the development of the "colony".

The residence of Dr. Sumner at the Institution having completed his eligibility, as defined in the by-laws of the Local Board, to membership in that body, he was elected to the Board at the regular meeting held on May 21, 1915.

Mr. E. P. Van Duzee, who had served as librarian for nearly two years, resigned in July, 1914, to accept a more advantageous position in the Entomological department of the University of California. His service to the Institution's library was most efficient, and his loss is keenly felt.

Director Ritter was granted leave of absence from the Institution from October 1 to December 1, 1914, in order to visit various men and places and institutions of the United States, primarily in the interest of the Institution.

More visiting scientists than ever before have made use of the Institution in one way or another during the year. Thus far no charge has been made to such persons; but with the increase of facilities and provision for transportation and living accommodations it will be best for the Board to consider some definite policy to be pursued on this matter.

From August 3 to 7, 1914, the Institution gave a course of lectures and demonstrations in San Diego on the economic resources of the sea and the utilization of them. The aim was to make the course appeal as directly as possible to the fishing and kindred interests, the speakers all being chosen with reference to their special fitness to deal with practical aspects of the topics treated. Those participating were Drs. C. A. Kofoed, of the University of California, B. M. Allen, of the University of Kansas, and Messrs. W. C. Crandall and P. S. Barnhart, of the Scripps

Institution. The course was given under the general auspices of the University of California Extension Division, and was introduced by the Director of the Division, Dr. I. W. Howarth.

Although the lectures were less well attended than we had hoped and rather expected, yet a few men actively connected with sea industries availed themselves to the full of the information offered.

The rapidly growing and already important fisheries on the coast of Southern California, particularly that of canning the Long Finned Tuna, is raising many problems that call loudly for scientific treatment. I have repeatedly joined my voice with those of the fishermen in urging upon the Bureau of Fisheries of the Federal Government and other officials, national and state, the desirability of giving real attention to the situation growing up in this quarter, so far without much effect. Attention is called to the possibility, even the probability, of the development here before many years of a fishery nearly if not quite as valuable as the salmon industry of Alaska; and it is obvious to all familiar with the situation that questions of both scientific and economic importance are coming on. The wisdom of meeting such questions in their incipiency rather than waiting till, by a drifting policy, complications have arisen that might easily have been avoided, would seem obvious enough.

The Scripps Institution is in position to be of some use in an incidental way, and is doing what it can very gladly. But to undertake to answer even the legitimate inquiries being constantly put to it by the cannery men and by those who do the fishing would entail a complete abandonment of the investigations now being prosecuted and the entrance upon others in several respects wholly different. Mr. Barnhart, who joined the Institution in the late fall of 1914, had been studying the tuna industry for several months as a special agent of the Bureau of Fisheries; but in the brief time devoted to the inquiry and with the inadequate facilities at his disposal it was impossible for him to do more than travel along the edges of the problem. The report on his work, which is now nearly ready, and which, though quite inadequate when judged from the standpoint of what is

needed, is yet filled with interesting and valuable information, and will be better in several respects than it could have been but for the author's connection with the Institution since his service with the bureau terminated. The best informed man there is on the scientific side of the tuna industry, is now connected with the Institution. This fact can hardly fail to bring it to pass that the Institution will play a considerable part, even though incidentally, in the further development of this industry, especially since Mr. Barnhart's present work is such as to enable him to continue to increase his knowledge of both the fish and the fishery.

The effort to utilize kelp as a fertilizer is another industrial undertaking to which the Institution is contributing not a little through Mr. Crandall, who largely because of his long and intimate connection with the marine work of the Institution, has become one of the most active and effective of the special assistants of the Federal Government's Bureau of Soils in the study of the kelp beds and of the experiments toward using the kelp.

The splendid maps of the beds on the whole western coast of North America, recently published by the government, are based, so far as concerns the beds of California and Lower California Coast, on surveys and information furnished by Mr. Crandall. The symposium entitled "Potash from Kelp," issued early in 1915, as Report No. 100 of the United States Department of Agriculture, contains an important contribution by Mr. Crandall on the extent and location of the beds.

Through the co-operation of Dr. Frank K. Cameron, chemist of the Bureau of Soils, Mr. E. W. Scripps, and Mr. Crandall, an experiment on the extraction of salts, particularly of potassium salts from the kelp, was carried on at the Institution during the past winter.

Finally, from his keen interest in the whole kelp fertilizer problem and from his continued connection with the Bureau of Soils Mr. Crandall has been able to keep the Bureau well informed as to the various attempts that have been made for the manufacture and marketing of fertilizer.

The long delayed publication of field data, the labor of which has fallen so largely to Messrs. Michael and McEwen, has finally

been issued as "Hydrographic, Plankton, and Dredging Records of the Scripps Institution for Biological Research of the University of California, 1901 to 1912" (University of California Publications in Zoology, Vol. 15, No. 1, pp. 1-206).

Two or three of the marine biological investigations have been delayed pending a joint effort by Messrs. Michael and McEwen to devise a method of testing the trustworthiness of some of the conclusions tentatively arrived at. The task was undertaken in this way for the purpose of bringing to bear upon it the biological knowledge of Mr. Michael and the mathematical knowledge of Dr. McEwen. Stated in a nutshell, the effort has been to find a way of determining the probability that a *difference between two observed averages is significant*; and of determining the *probability that an observed average deviates from the true average by any given amount*. Both aims have been attained for certain types of problems, and are regarded as of importance because of the applicability of the methods to a considerable range of biological investigations, particularly those involving the relation of organisms to their environments. A joint paper on the study is nearly ready for publication.

By way of appliances to facilitate investigations in hydrography, Dr. McEwen has devised an instrument for recording the exact depth of closing of deep-sea apparatus which is closed after being sent down, and has prepared a set of charts and tables from the original data of all the hydrographic observations thus far made by the Institution.

In his oceanographic researches proper he has made progress in the task (mentioned in my last report) of formulating and testing a physical theory to account for the observed average relations between solar radiation, ocean temperatures, oceanic circulation, and wind velocities. He has studied evaporation and salinity in relation to this theory, and found them to harmonize with it.

He contributed a paper, "Oceanic Circulation and Temperature off the Pacific Coast," to the guide book for travelers in the west, entitled "Nature and Science on the Pacific Coast," and recently published by Paul Elder & Co., San Francisco.

As assistant to Professor Kofoid in his work on the Dinoflagellates, Miss Inez Smith spent several months at the Institution during the summer of 1914, one of the results of her work being the discovery that the "phosphorescence" of the sea which developed last year was due to a new organism, and not to *Gonyaulax*, the species which usually produces the "red water" and great displays of phosphorescence in this region. Not only is the organism itself new to science but the type of phosphorescence is also new, according to the investigators.

Professor Kofoid and Miss Smith have also found stages in the hitherto unknown life history of *Gonyaulax* which link that species with an organism previously supposed to be a peculiar kind of algae. They have made progress on a monograph of the genus *Ceratium* of the San Diego region, which has been in hand with Professor Kofoid for several years.

Mr. Michael has nearly completed the identification of the Chaetognatha of the Philippine Expedition of 1907-10, submitted to him by the United States National Museum. It remains to study the distribution and compare this with the distribution of the representatives of the group in the San Diego region; but already the fact comes to light that in general species common at San Diego are absent or are of rare occurrence in the Philippines, and vice versa.

Mr. Michael has made progress in confirming and elucidating the wholly unexpected and surprising facts discovered some three years ago, touching the vertical distribution of the sexual and asexual generations of *Salpa democratica*. But completion of his investigation has awaited the results of the joint study by himself and McEwen of statistical methods, referred to above.

In view of the circumstance that the question of the food and mode of feeding of the copepoda is one of special interest just at present because of its being involved in certain problems of both scientific and economic moment, and in view of the meager information possessed on the subject it seemed best that Dr. Esterly should devote most of his time at the Institution during the summer of 1914 to the study of the subject. The result was a large and interesting extension of our knowledge not only of

what these little crustaceans, which play so important a part in the economy of the sea eat, but also how they catch their prey.

Besides, Dr. Esterley has continued during the year, as his college duties would permit, the statistical studies on the vertical migrations of the copepods, handling the data according to the methods developed by Messrs. Michael and McEwen.

In addition to his work as librarian, Dr. Berry has taken in hand during the year, mostly as home work, yet under the auspices of the Institution, the completion of his study of the species and distribution of the chitons of the California coast. This work was begun some years ago, but was laid aside temporarily because of lack of time and certain instrumental facilities for prosecuting it.

Professor Daniel, who has been occupied for several years with the morphological study of several species of cartilaginous fishes from the California coast, carried on his work several months during the year at the American Museum of Natural History. The exceptional facilities afforded by the collections and libraries of that great institution should make Dr. Daniel's volume, now nearly ready for publication, more complete than it otherwise could have been.

Early in the year Dr. Sumner closed his studies on white mice by publishing (*Journ. of Experimental Zoology*, April, 1915) his final report on the subject. This investigation of several years' duration being out of the way, he is now devoting his entire time to the researches entered upon when he joined the Institution.

In addition to the stations in Berkeley and Victorville, San Bernardino County, mentioned in my last year's report, as places for collecting and observing the mice upon which the investigations are being prosecuted, two other stations have been established during the year. These are in Eureka, Humboldt County, and on the Institution grounds in San Diego County. It will be noticed that this distribution of stations includes a typical northern humid coast locality, a typical southern less humid locality, a typical intermediate coast locality, and a typical southern interior dry locality.

The northern coastal (Eureka) station, the southern coastal (La Jolla) station, and the inland southern (Victorville) station each has its quite distinct race or subspecies of the genus of mice, *Peromyscus*, being used. *P. maculatus rubidus* is the Eureka mouse; *P. maculatus gambeli* is the La Jolla animal, and *P. maculatus sonoriensis* is the one which lives at Victorville. The Berkeley subspecies is considered to be the same as that at La Jolla.

In November Dr. Sumner collected over one hundred individuals at Eureka and moved them finally to La Jolla. A hundred Victorville specimens were secured in April and taken to La Jolla, and as a lot of both Victorville and Berkeley specimens previously kept at Berkeley had been moved to La Jolla and one hundred and fifty La Jolla mice have been trapped there and placed in confinement at present some three hundred specimens of native stock, representing three subspecies and coming from widely separated localities, are in the Murarium. All are thriving and breeding well, although the efforts at crossing the different kinds have not yet gone far enough to enable us to guess how successful these experiments will be.

Something of the results of the work is already clearly indicated. The lighter colored semi-desert *P. m. sonoriensis*, born and reared in Berkeley or La Jolla, the native homes of *P. m. gambeli*, are typical *sonoriensis*, and not *gambeli*. Coast conditions do not change an inland into a coast species in two generations, at any rate. The characters of these minutely different kinds are "germinal" and not merely "somatic".

Confinement of these wild species, even under the favorable conditions provided for them, begins almost immediately, it would seem, to alter certain body proportions of the individual animals. This will be studied with great care to ascertain the extent of the change, and especially to see if it becomes hereditary.

The director's scientific work during the year has consisted in gathering, through collaboration with Dr. Myrtle Johnson, further data on the proportionality of parts in the growth of organisms; in making systematic observations daily throughout the year on the influence of environmental conditions on the

singing of the western meadow lark; and in carrying forward his critical studies of organization, or integration, in organisms generally.

Although this summary touches all the kinds of work now actually in hand at the Institution, a new line of investigation is under consideration with sufficient seriousness to warrant mention. It has long been a more or less definite idea of those immediately responsible for the Institution that some time aspects of human biology might be taken up. From a number of general considerations which need not be detailed here it seems highly desirable that certain sorts of quantitatively exact, systematic studies of the effect of environment upon the human species are urgently called for both from biological and sociological reasons. The quantitative studies being prosecuted by Messrs. Michael, Esterly and Sumner, on the influence of environment on organisms, and especially those by Messrs. McEwen and Michael on mathematical methods of dealing with statistics for such purposes, point clearly toward studies on man of the kind indicated as being needed at the present time. This also coincides with interests and studies that have long occupied the director. It is therefore a more or less definitely expressed purpose of the Local Board of Management to undertake something in this direction as soon as the Institution's financial condition shall warrant it.

Respectfully submitted,

WM. E. RITTER.

Director.

SECRETARY OF THE REGENTS

UNIVERSITY OF CALIFORNIA,

BERKELEY, July 1, 1915.

*To the Honorable Board of Regents
of the University of California:*

GENTLEMEN: I have the honor of presenting the following
Secretary's Report for the year ending June 30, 1915.

Respectfully submitted,

VICTOR H. HENDERSON,
Secretary of the Regents

REGENTS OF THE UNIVERSITY, 1914-15

REGENTS EX OFFICIO

HIS EXCELLENCY HIRAM WARREN JOHNSON	-	-	Sacramento
<i>Governor and ex officio President of the Regents</i>			
HIS HONOR JOHN MORTON ESHLEMAN, A.B., M.A.			
(from January 4, 1915)	-	-	Sacramento
<i>Lieutenant-Governor</i>			
HIS HONOR ALBERT J. WALLACE,			
(to January 4, 1915)	-	621 Union Oil Building, Los Angeles	
<i>Lieutenant-Governor</i>			
CLEMENT CALHOUN YOUNG, B.L.	-	-	80 Post Street, San Francisco
<i>Speaker of the Assembly</i>			
HON. EDWARD HYATT	-	-	Sacramento
<i>State Superintendent of Public Instruction</i>			
HON. JOHN M. PERRY			
(from April 2, 1915)	-	-	10 West Weber Avenue, Stockton
<i>President of the State Agricultural Society</i>			
HON. A. LOWMEDES SCOTT (to April 2, 1915)	-	-	San Francisco
<i>President of the State Agricultural Society</i>			
LIVINGSTON JENKS, A.B., LL.B.	-		Mills Building, San Francisco
<i>President of the Mechanics' Institute</i>			
BENJ. IDE WHEELER, Ph.D., LL.D., Litt.D.	-		California Hall, Berkeley
<i>President of the University</i>			

APPOINTED REGENTS

The term of the appointed Regents is sixteen years, and terms expire March 1 of the year indicated. The names are arranged in the order of original accession to the Board.

ISAIAS WILLIAM HETLMAN, ESQ.	-	-	-	-	-	-	1918
Wells, Fargo-Nevada National Bank, San Francisco							
Mrs. PHOEBE APPERSON HEARST	-	-	-	-	-	-	1930
Pleasanton. Business address: 410 Hearst Building, San Francisco							
ARTHUR WILLIAM FOSTER, ESQ.	-	-	-	-	-	-	1916
1210 James Flood Building, San Francisco							
GARRETT WILLIAM McENERSEY, ESQ.	-	-	-	-	-	-	1920
2002 Hobart Building, San Francisco							
GUY CHAFFEE EARL, A.B.	-	-	-	-	-	-	1918
14 Sansome Street, San Francisco							
RUDOLPH JULIUS TAUSIG, ESQ.	-	-	-	-	-	-	1916
Main and Mission Streets, San Francisco							
JAMES WILFRED MCKINLEY, B.S.	-	-	-	-	-	-	1922
706 Security Building, Los Angeles							
JOHN ALEXANDER BRITTON, ESQ.	-	-	-	-	-	-	1930
445 Sutter Street, San Francisco							
FREDERICK WILLIAM DOHRMANN, ESQ. (to August 18, 1914).							
201 Geary Street, San Francisco							
CHARLES STETSON WHEELER, B.L.	-	-	-	-	-	-	1928
Nevada Bank Building, San Francisco							
WILLIAM HENRY CROCKER, Ph.B.	-	-	-	-	-	-	1924
Crocker National Bank, San Francisco							
PHILIP ERNEST BOWLES, Ph.B.	-	-	-	-	-	-	1922
American National Bank, San Francisco							
JAMES KENNEDY MOFFITT, B.S.	-	-	-	-	-	-	1924
First National Bank, San Francisco							
Rev. CHARLES ADOLPH RAMM, B.S., M.A., S.T.B.	-	-	-	-	-	-	1928
1100 Franklin Street, San Francisco							
EDWARD AUGUSTUS DICKSON, B.L.	-	-	-	-	-	-	1926
1631 Cimarron Street, Los Angeles							
JAMES MILLS, ESQ.	-	-	-	-	-	-	1926
Hamilton City, California							
CHESTER HARVEY ROWELL, Ph.B. (from November 25, 1914)	-						1920
Fresno, California							

OFFICERS OF THE REGENTS

HIS EXCELLENCY HIRAM WARREN JOHNSON	-	-	-	-Sacramento
	<i>President</i>			
RALPH PALMER MERRITT, B.S.,	-	-	220 California Hall, Berkeley	
	<i>Comptroller</i>			
VICTOR HENDRICKS HENDERSON, B.L.,	-	209 California Hall, Berkeley		
	<i>Secretary</i>			
ISAIAS WILLIAM HELLMAN, JR., Ph.B.	Union Trust Company, San Francisco			
	<i>Treasurer</i>			
WARREN OLNEY, JR., A.B., LL.B.				
	Merchants' Exchange Building, San Francisco			
	<i>Counsel</i>			

STANDING COMMITTEES OF THE REGENTS FOR 1914-15*

Finance: Regents Earl, Foster, Britton, Moffitt, Taussig, and as Member Emeritus, Regent Hellman.

Grounds and Buildings: Regents Britton, Mrs. Hearst, Dohrmann (to August 18, 1914), Jenks (from October 13, 1914), Bowles, and C. S. Wheeler.

Agriculture: Regents Scott (to April 2, 1915), Foster, Dickson, Jenks, and Mills; Regent Bowles alternate.

Medical Instruction: Regents Crocker, Moffitt, Ramm (from October 13, 1914), Dohrmann (to August 18, 1914), Mrs. Hearst (to October 13, 1914), and Dickson; Regent Taussig alternate.

Lick Observatory: Regents Ramm, Jenks, Young, and Crocker.

University Hospital (this committee was appointed on December 22, 1914): Regents Crocker, Taussig, Britton, Earl, and Moffitt.

Wilmerding School: Regents Taussig, Earl, and Moffitt.

Scripps Institution for Biological Research: Regents McKinley, Wallace (to January 4, 1915), and Hyatt.

* The President of the Board of Regents and the President of the University are ex officio members of all committees of the Board. In each committee the name of the chairman is first and the name of the vice-chairman second.

SPECIAL COMMITTEES OF THE REGENTS DURING 1914-15*

Committee on Committees for 1914-15: Regents Earl, Britton, Moffitt, Scott, and Taussig.

Committee on Committees for 1915-16: Regents Earl, Britton, Dickson, Moffitt, and Taussig.

Committee on Courses of Instruction: Regents Earl, C. S. Wheeler, and Moffitt.

Committee on Site for the Citrus Experiment Station: Regents Taussig, Scott, and Mills.

Committee to Draft Resolutions in Honor of Regent Dohrmann: President Wheeler.

University Hospital Building Committee: Regents Crocker, Taussig, Earl, Moffitt, and Britton.

STANDING COMMITTEES OF THE REGENTS FOR 1915-16*

On June 8, 1915, the Board voted to recommend to the President of the Board that the Standing Committees for 1915-16 should be as follows:

Finance: Regents Earl, Foster, Britton, Moffitt, Taussig, and Eshleman, and Regent Hellman as Member Emeritus.

Grounds and Buildings: Regents Britton, Mrs. Hearst, Jenks, Bowles, and C. S. Wheeler.

Agriculture: Regents Foster, Dickson, Jenks, Mills, and Perry; Regent Bowles, alternate.

Medical Instruction: Regents Crocker, Moffitt, Ramm, Dickson, and Taussig.

Lick Observatory: Regents Ramm, Crocker, McEnerney, and Young.

University Hospital: Regents Crocker, Taussig, Britton, Earl, and Moffitt.

Wilmerding School: Regents Taussig, Earl, and Moffitt.

Scripps Institution for Biological Research: Regents Dickson, Eshleman, and Hyatt.

Curriculum and Degrees: Regents Rowell, Moffitt, and C. S. Wheeler.

* The President of the Board of Regents and the President of the University are ex officio members of all committees of the Board. In each committee the name of the chairman is first and the name of the vice-chairman second.

ORDERS OF THE BOARD

Death of Regent Dohrmann:

On August 11, 1914, President Wheeler reported to the Regents:

"I report the death of Regent Dohrmann, a man who has been a personal friend of all of us, a man of rare patience, kindness, and straightout goodness."

President Wheeler was requested by the Board to act as a committee of one to draft resolutions concerning Regent Dohrmann, and it was voted that these resolutions be spread upon the minutes. The Board then adjourned in honor of Regent Dohrmann.

On September 15, 1914, President Wheeler made further report to the Board as set forth hereinafter, and this tribute to the memory of Regent Dohrmann was ordered spread upon the minutes of the Board:

"In a little hamlet in Schleswig-Holstein, seventy-one years ago, there was born into the family of the village doctor a son. His schooling was brief, for at fifteen years of age he began to earn a livelihood for himself. Still a young boy, he came to California, and while yet of the age of a college undergraduate of today, successfully established himself as a merchant in Oakland. As the years went by, industry, thrift, and sound judgment earned their due reward, the circle of his activities widened, and in time the immigrant lad of the fifties became the premier merchant of the Pacific Coast, directing great and varied affairs, in cities many and far-spread, and always with honor and fair-dealing and kindness toward all.

"To the service of the common good he gave unstintingly of painstaking toil and of ripe wisdom in council. When the merchants of San Francisco joined themselves together, he was their chosen leader, first of all, and for seven years, and always afterwards as honorary head; when San Francisco was stricken by disaster, he was charged with the task of disbursing the many millions generous humanity had supplied, and of so applying this relief that men and women should be strengthened to help themselves, not weakened into dependency. Remembering the pleasant

places of his own home land and the use the city-dweller makes of trees and river-margins and open spaces in the city's midst, he toiled gladly to make the parks of San Francisco a people's playground and abundant source of health, happiness, and contentment. Liberal in his ideas of man's place in the universe, forward-looking in his social theories, keenly interested in the progress of the world, he served valorously in the ever-continuing fight for human liberty. It was the University as leader toward new truth, new beauty, new freedom, that was dear to his heart. To its service he gave through a decade a loyal affection, a zeal in endeavor, a wisdom in judgment, which have left their effects in body and spirit of the University.

"And now, on the eighteenth of July, nineteen hundred and fourteen, Fredrick William Dohrmann ceased his long years of service to his fellow men. In sorrow at their loss of an honored and beloved colleague, the Regents of the University of California set down upon their records this tribute to a good man gone."

Death of Samuel Benedict Christy:

On December 8, 1914, President Wheeler reported to the Regents the death on November 30, 1914, of Dr. Samuel Benedict Christy, Professor of Mining and Metallurgy and Dean of the College of Mining, a member of the faculty of the University of California from 1874 to 1914.

Death of Dr. Edith J. Claypole:

On April 13, 1915, President Wheeler reported to the Regents the death of Dr. Edith J. Claypole, Research Associate in Pathology, on March 26, 1915.

Death of Emil F. Grauel:

On April 13, 1915, President Wheeler reported to the Regents the death of Emil F. Grauel, Orchard Foreman at the University Farm, on April 1, 1915.

A.B. Degree:

On September 15, 1914, President Wheeler presented a communication from the Academic Senate acknowledging receipt of

a copy of the proceedings taken by the Regents on June 9, 1914, whereby the Board had expressed the opinion that the wisest policy for the University to pursue would be to grant the degree of A.B. to all graduates of the academic colleges other than those in the applied sciences. The communication of the Academic Senate stated that the Senate on August 31, 1914, had adopted "the principle of a single college and a single degree, A.B." (for graduates other than those in the applied sciences), and had referred the formulation of a further memorial to the Regents to a faculty committee.

College of Letters and Science:

On December 22, 1914, the plan of creating a consolidated College of Letters and Science, all graduates of which should receive the degree of Bachelor of Arts, the degree of Bachelor of Letters no longer to be given, was adopted by the Regents, subject to the approval of the Attorney of the Regents as to the legality of naming the proposed new college "College of Letters and Science." The following recommendation of the special Committee on Courses of Instruction were approved:

"That the following recommendations of the Academic Senate be approved and confirmed:

"1. That the three existing colleges, known as the College of Letters, the College of Natural Sciences, and the College of Social Sciences, be consolidated into a single college.

"2. That the name of the consolidated college be the College of Letters and Science.

"3. That the degree to be conferred upon graduates of the College of Letters and Science be Bachelor of Arts.

"4. That the higher degrees to be conferred in the College of Letters and Science be Master of Arts and Doctor of Philosophy."

On March 9, 1915, Attorney Olney reported as follows in regard to the question of the legality of naming the proposed new college "College of Letters and Science":

"SAN FRANCISCO, March 9, 1915.

"Mr. V. H. Henderson, Secretary of The Regents of the University of California.

"DEAR SIR: Your letter of December 23, 1914, states that the Regents have, subject to the concurrence of their attorney as to the legal propriety of such action, approved and confirmed the following recommendation of the Academic Senate:

"1. That the three existing colleges, known as the College of Letters, the College of Natural Sciences, and the College of Social Sciences, be consolidated into a single college.

"2. That the name of the consolidated college be the College of Letters and Science.

"3. That the degree to be conferred upon graduates of the College of Letters and Science be Bachelor of Arts.

"4. That the higher degrees to be conferred in the College of Letters and Science be Master of Arts and Doctor of Philosophy.

"In my judgment, the Regents are within their legal rights in putting into effect the foregoing recommendations, provided that the courses of instruction required by the new College of Letters and Science be such as to give the college an academic character, that is, such as to make it a college for general cultural and non-technical instruction as distinguished from professional or technical instruction.

"Respectfully yours,

(Signed) WARREN OLNEY, Jr."

Curriculum of the College of Letters and Science:

On May 11, 1915, the Regents approved a curriculum for the College of Letters and Science, proposed in a memorial from the Academic Senate as follows:

PART I—LOWER DIVISION

Section 1. Units for matriculation.

Subjects	Required
English (1)	6
Plane Geometry (2)	3
Elementary Algebra (3)	3
History (5, 10, 13a, 13b)	3
Greek, Latin, German, French, Spanish (6, 7, 8, 9, 15)	6
Advanced Science (11, 12b, etc.)	3
Additional Foreign Language,	
<i>or</i>	
Intermediate or Advanced Mathematics (4, 12a),	
<i>or</i>	
Additional Advanced Science	6
Electives (subjects 4-17)	6
Any electives	9
"Advanced" subjects	[12]
Total	45

Sec. 2. Units for Junior Certificate including matriculation (Matriculation 45 plus Lower Division 64-109).

Subjects	Required	
	Plan A	Plan B
English	6	12
Mathematics	6	12
Mathematics or Logic	6	—
Greek, Latin	12	—
Greek, Latin, German, French, Spanish, Italian	12	12
Natural Science (must include Laboratory Science, 6 units)	12	18
History, Economics, Political Science	9	9
Military Science	5	5
Physical Education	2	2
Hygiene	2	2
Elective	37	37
Subject A, Subject B (required, without unit credit)	—	—
Total	109	109

Sec. 3. A department or group of departments may, with the approval of the Committee on Courses of Instruction, make requirements in collateral subjects preparatory to a major subject.

PART II—UPPER DIVISION

Section 1. In the Upper Division candidates for the degree of Bachelor of Arts shall be required to have completed 60 units of work, of which 36 units shall be in major courses.

Sec. 2. A group elective of 12 units of major work in one department shall be selected from departments: 1-34, 40. (See Circular of Information, August, 1914, p. 102.)

Sec. 3. A major of 24 or more units may be selected in one department; but in certain cases work in allied departments approved by the major department may be counted for the major. [Added June 8, 1915.]

Sec. 4. Honors may be conferred only on students who shall have completed the major with distinction.

Sec. 5. The major shall be mentioned in the graduation programme in the Honors List.

Sec. 6. Honorable mention with the Junior Certificate shall not reduce the number of units in the Upper Division.

Sec. 7. Existing regulations not in conflict with the foregoing shall remain in force.

New Degree of Graduate in Public Health:

Training for a career in the profession of public health was provided for by the action of the Regents on December 22, 1914, in approving the following recommendation of the special Committee on Courses of Instruction:

“That the following recommendations of the Academic Senate be approved and confirmed:

“1. That curricula in public health, as indicated below under *a*, *b*, and *c*, be authorized; and

“2. That the Board of Regents be memorialized to establish the degree of Graduate in Public Health, to be conferred upon students who have satisfactorily completed one of the three stated curricula.

“The proposed curricula are as follows:

“*a*. A four-years course in the College of Letters and Science, two years of which may be credited toward the degree A.B. The course begins with the junior certificate.

“*b*. A two-years course in the Graduate School (College of Letters and Science). Prerequisite, the degree B.S. conferred in

the College of Civil Engineering upon students who have completed the undergraduate curriculum in sanitary engineering.

"c. A course for students in the Medical School beginning in the second half of the fourth year of the regular curriculum in that school and continuing for a year and a half, to the end of the fifth year, at which time the degree M.D. in the Medical School and the degree Graduate in Public Health in the College of Letters and Science are to be conferred."

New Degree of Graduate in Architecture:

On December 22, 1914, the degree of Graduate in Architecture was established, as recommended by the Academic Senate, this degree to "be conferred upon such students as shall complete a suitable professional curriculum in the School of Architecture, under conditions approved by the Academic Senate."

Home Economics:

On December 22, 1914, it was declared the intention of the Regents to appoint, as requested in a memorial presented by the Academic Senate, a properly qualified person who shall direct the development of instruction in the general field of home economics, with a view to its *ultimate* organization as a school or college.

Memorials from the Academic Senate:

On June 8, 1915, the following proposals contained in memorials from the Academic Senate were referred to the committee of the Regents on Curriculum and Degrees:

"DEFINITION OF THE FACULTY OF A SCHOOL

"Section 1. The faculty of the School of Commerce shall consist of all professors and instructors giving instruction in prescribed subjects of the curriculum.

"Sec. 2. The Faculty of the School of Education consists,—

"(1) of the members of the Department of Education;

"(2) of the professors or instructors in other departments who give professional courses that have been approved as such by the President and the Department of Education;

- “(3) of one member from each department or college or school representing a secondary school subject, but offering as yet no professional courses, this member having been appointed by the President in consultation with the department concerned and the School of Education.

“ESTABLISHMENT OF A SCHOOL OF COMMERCE

“Section 1. That there be established a School of Commerce with a course covering three years.

“Sec. 2. That students may enter the School of Commerce who have received the junior certificate in any of the colleges of the University of California, or on completion of substantially equivalent work elsewhere.

“Sec. 3. That students in the School of Commerce may receive the degree of A.B. or A.M. when they comply with the requirements for those degrees.

“Sec. 4. That an appropriate degree be conferred on the completion of the course (three years).

“Sec. 5. That all candidates for this degree shall be required to pass a general examination at the end of the course.

“Sec. 6. The administration of the School of Commerce shall be under the general authority of the faculty of the school, and there shall be a director appointed.

“CONFERRING OF DEGREES

“That the Regents be memorialized to authorize the Academic Senate to recommend the conferring of degrees in course in the name of the University when the power to recommend is not otherwise reserved by law.”

Fifth Year in Medicine Required:

On August 11, 1914, the following recommendations of the Academic Senate and medical faculty were approved:

“That a fifth or ‘interne’ year be required from all candidates for the degree of M.D. entering in 1914 and thereafter (one year’s work in teaching or research in any of the departments of the Medical School to be considered the equivalent of this fifth year).

“That no fees be charged for the new fifth year.

“That the designation of the medical department as ‘College of Medicine of the University of California’ be changed to ‘University of California Medical School.’ ”

Diplomas:

On April 13, 1915, the Regents referred to the Academic Senate with power to act the following report and recommendation of President Wheeler in regard to the use of an English instead of a Latin diploma, and in regard to the revision of the forms for diplomas:

"That the Academic Council at its meeting on March 29 adopted the following resolution: 'That the Committee on Regulations be instructed to prepare new forms of diplomas for all degrees conferred on recommendation of the academic faculties, that these forms be in the English language, and that such academic forms be presented to the Council for its approval and the approval of the Regents.' And I beg to recommend further that the Regents delegate to the Academic Council determination of such new diploma forms with power to use these forms for all students upon whom degrees are to be conferred at the forthcoming commencement. It is understood that such forms adopted by the Academic Council may if necessary be submitted for further approval in behalf of the Regents to the Attorney or other official of the Board, or to a committee of the Board."

Budget for 1915-16:

On May 11, 1915, the Regents approved a budget recommended by President Wheeler and the Finance Committee which contemplated the expenditure during the year ending June 30, 1916, of \$2,469,077.62.

Legislative Appropriations for 1915:

Governor Hiram W. Johnson approved appropriations voted by the Legislature of 1915 for the benefit of the University as follows:

A. The State University Fund (for general expenses of maintenance of the University) for 1915-16, \$998,008; for 1916-17, \$1,067,868.70.

B. Items in the General Appropriation Bill:

1. Toward the support of the University, \$200,000 per annum.
2. For the inspection of commercial fungicides and insecticides, \$5000 per annum.

3. For the support of the Department of Agriculture, \$350,000 per annum.
4. For the support of the Scripps Institution for Biological Research, \$12,500 per annum.
5. For printing the University Building Bonds, a credit at the State Printing Office.

C. For University Extension, \$20,000 per annum.

Acts were approved authorizing the University of California to co-operate with the United States Department of Agriculture under the terms of the Smith-Lever Act, which provides national appropriations for the building up of the farm adviser system and for demonstration work throughout the United States of improved methods in agriculture and home economics. An act was approved, also, authorizing the appropriation of county money for co-operation with the farm adviser system and other agricultural extension work.

As passed, the act for the State University Fund provides for increase in this fund to the extent of seven per cent per annum for two years.

\$1,800,000 in University Building Bonds:

At the State election on November 3, 1914, the people of California voted by a majority of 175,688 (the total vote cast was 654,352) to issue University Building Bonds to the amount of \$1,800,000 for the completion of the University Library and for the erection of a classroom building (it is to be known as Benj. Ide Wheeler Hall), a first unit for a future group of permanent buildings for Chemistry, and a second unit for Agriculture. Of the forty-eight initiative, referendum, and constitutional amendment measures voted on by the people at this election, only a single one received a larger affirmative majority than the proposal for the University Building Bonds, this single exception being the proposal that in case prohibition carried the date of "going dry" should be deferred.

The energy, enthusiasm, and loyalty with which the alumni carried through this campaign to a successful issue, and the

friendly feeling toward the University of the entire people of the State were two of the most gratifying aspects of this important chapter in the history of the University.

The initiative measure by the voting of which the issuance of \$1,800,000 of University Building Bonds was authorized was as follows:

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

Section 1. The Regents of the University of California are hereby authorized to complete the construction of the library building of the University of California, and also to construct a building for general use by said University as a recitation building, a building for the use of the College of Agriculture of said University, and a building for the use of the College of Natural Sciences of said University as a chemistry building, all on the grounds of said University in the City of Berkeley. For the purpose of meeting the cost of such construction, the State of California is hereby authorized to, and shall, incur an indebtedness in the manner provided by this Act, in the sum of one million eight hundred thousand dollars (\$1,800,000).

Immediately upon the taking effect of this Act the Treasurer of the State shall prepare eighteen hundred (1800) suitable bonds of the State of California, negotiable in form and payable to bearer, and expressing on their face the obligation of the State of California to pay, in Gold Coin of the United States, the principal amount thereof at the respective dates of maturity hereinafter specified, together with interest, as hereinafter specified, in the denomination of one thousand dollars (\$1000) each. Said bonds shall be numbered consecutively from one (1) to eighteen hundred (1800) inclusive, and shall bear date the fifth day of January, 1915. The total issue of such bonds shall not exceed the principal sum of one million eight hundred thousand dollars (\$1,800,000), and such bonds shall bear interest at the rate of four and one-half per cent ($4\frac{1}{2}\%$) per annum upon the principal from the date thereof. The said bonds and the interest thereon shall be payable in gold coin of the United States at the office of the Treasurer of the State, at the times and in the manner following, to wit: The first forty (40) of said bonds shall be due and payable on the fifth day of January, 1921, and forty (40) of said bonds in consecutive numerical order shall be due and payable on the fifth day of January in each and every year thereafter, until and including the fifth day of January, 1965. The interest accruing on all of said bonds that shall be sold shall be payable at the office of the Treasurer of the State on the fifth day of January and on the fifth day of July of each and every year after the sale of the same. The interest on all bonds issued and sold shall cease on the day of their maturity, and the said bonds so issued and sold shall on the day of their maturity be paid, as herein provided, and cancelled by the State Treasurer. All bonds remaining unsold shall, at the date of the maturity thereof, be cancelled and destroyed by the Treasurer of the State. All bonds issued pursuant to the provisions of this Act shall be signed by the Governor of the State, countersigned by the State Controller, and endorsed by the State Treasurer, and each of said bonds shall have the Great Seal of the State of California impressed thereon. The said bonds signed, countersigned, endorsed and sealed, as

herein provided, when sold, shall be and constitute a valid and binding obligation upon the State of California, though the sale thereof be made at a date or dates after the persons so signing, countersigning and endorsing, or any of them, shall have ceased to be the incumbents of said office or offices.

Sec. 2. Attached to each of said bonds there shall be an interest coupon for each semi-annual payment of interest thereon, negotiable in form, and payable to bearer, and expressing the obligation of the State of California to pay the amount of such semi-annual payment of interest, in Gold Coin of the United States, at the time of maturity thereof. Said interest coupons shall be so attached that each may be detached without injury to or mutilation of said bond, or injury to, mutilation of, or detachment from said bond of, the remainder of such coupons the time of payment of which has not yet been reached. Said coupons shall be consecutively numbered in the chronological order of their time of payment, and shall bear the lithographed signature of the State Treasurer. No interest shall be paid on any of said bonds for such time as may intervene between the date of said bond and the day of sale thereof, except to the extent to which accrued interest shall have been paid to the State at the time of such sale by the purchaser of said bond.

Sec. 3. When the bonds authorized by this Act to be issued shall have been signed, countersigned, endorsed and sealed, as in Section 1 provided, the State Treasurer shall, from time to time, sell such number thereof as the Governor of the State may direct to the highest bidder for cash. The Governor of the State shall, from time to time, issue to the State Treasurer such direction immediately after being requested so to do through and by a resolution duly adopted and passed by a majority vote of The Regents of the University of California. Such resolution shall specify the amount of money which, in the judgment of said The Regents of the University of California, shall be required at such time, and the Governor of the State shall direct the State Treasurer to sell such number of bonds as will, at the par value thereof, equal said amount of money so required according to such resolution of The Regents of the University of California. Said bonds shall be sold in consecutive numerical order, save and except that the State Treasurer may sell two or more bonds at the same time in one lot, which lot, however, shall be made up of bonds consecutively numbered, the first of which in number shall be the first bond in number yet unsold. The State Treasurer shall not accept any bid which is less than the par value of the bond or bonds bid for, and to the amount of the accepted bid there shall be added in each case, as a part of the purchase price to be paid by the bidder, the amount of interest which shall have accrued on the bonds bid for between the date of the payment for said bonds and the last preceding interest maturity date. Each bid shall be in writing and signed by the bidder and sealed, and shall be deposited with the State Treasurer not later than the last business day preceding the date of sale. Each bid shall be accompanied by the deposit with the State Treasurer, either in cash or by certified check on a reputable bank within the State of California, to the order of the State of California, of one-tenth of the amount of the par value of the bond or lot of bonds bid for. Such deposit of each unsuccessful bidder shall be returned to him immediately upon the next acceptance of his bid, and such deposit of the successful bidder shall immediately upon the acceptance of his bid become and be the property of the State of California and be placed in the State Treasury to the credit of the "University of California Building Fund" hereinafter mentioned, and

shall be credited to the successful bidder upon the purchase price of the bonds bid for in case such price is paid in full by him within the time hereinafter prescribed. At the time of sale the State Treasurer shall open said bids and accept the bid of the highest bidder for cash, save and except that no bid shall be accepted which is lower in amount than the par value of the bonds bid for, and that the State Treasurer may, in his discretion, reject all bids. The purchase price of the bonds sold shall be payable within ten days after the acceptance of the bid therefor, and if not so paid the successful bidder shall have no right in or to said bonds or by reason of said bid, or to the recovery of said deposit accompanying said bid, or to any allowance or credit by reason of such deposit. In case the purchase price is not so paid, the bonds so sold but not paid for shall be resold by the State Treasurer upon notice as hereinafter provided in case of original sale. Bonds sold shall be deliverable to the purchaser immediately upon, and not before, the payment of the purchase price therefor. Before delivering any of said bonds, the State Treasurer shall detach therefrom all interest coupons which have matured before the date of the payment of the purchase price therefor. The State Treasurer may, by public announcement at the time and place fixed by him for said sale, continue such sale to such time and place as he may at the time of said continuance designate. When a sale is so continued no notice thereof need be given, other than the public announcement of such continuance by the State Treasurer as just hereinbefore provided. The State Treasurer shall give notice of the time and place of sale by publication in two newspapers published in the City and County of San Francisco, in one newspaper published in the City of Los Angeles, in one newspaper published in the City of Oakland, and in one newspaper published in the City of Sacramento, once a week for four weeks next preceding the date fixed for such sale. In addition to the notice last above provided for, the State Treasurer may give such further notice as he may deem advisable, but the expense and cost of such additional notice shall not exceed the sum of five hundred dollars (\$500) for each sale so advertised.

There is hereby created in and for the State Treasury a fund to be known and designated as the "University of California Building Fund," and immediately after such sale of bonds the Treasurer of the State shall pay into the State Treasury and cause to be placed in said "University of California Building Fund" the total amount received from the sale of said bonds, except such amount as may have been paid as accrued interest thereon. The amount that shall have been paid at such sale as accrued interest on the bonds sold shall be by the Treasurer of the State, immediately after such sale, paid into the Treasury of the State and placed in a fund to be known as the "Interest and Sinking Fund of the University of California Building Bonds."

The moneys placed in the "University of California Building Fund," pursuant to the provisions of this section, shall be used under the direction of The Regents of the University of California exclusively for the completion of the construction of said library building and the construction of the other buildings hereinbefore mentioned.

Moneys shall be drawn from said "University of California Building Fund," for the purposes of this Act, upon warrants duly drawn by the Controller of the State, upon claims made by The Regents of the University of California and approved by the State Board of Control.

Sec. 4. There is hereby appropriated from the general fund in the State Treasury such sum annually as will be necessary to pay the principal of, and interest on, the bonds issued and sold pursuant to the pro-

visions of this Act as said principal and interest become due and payable. There shall be collected each year, and in the same manner and at the same time as other state revenue is collected, such sum in addition to the ordinary revenues of the State as shall be required to pay the principal and interest on said bonds maturing in said year, and it is hereby made the duty of all officers charged by law with any duty in regard to the levy and collection of said revenue to do and perform each and every act which shall be necessary to collect such additional sum.

There is hereby created in the State Treasury a fund to be known and designated as the "Interest and Sinking Fund of the University of California Building Bonds." The State Treasurer shall, on the first day of July, 1915, and on the first day of each January and the first day of each July thereafter, transfer from the general fund of the State Treasury to said "Interest and Sinking Fund of the University of California Building Bonds" such an amount of money as shall be required to pay the interest maturing at the next interest payment date on the amount of said bonds sold and outstanding; and shall likewise, on the first day of January of the year 1921, and the first day of January of each year thereafter in which any of said bonds sold and outstanding mature, transfer from the general fund of the State Treasury to said "Interest and Sinking Fund of the University of California Building Bonds" such an amount of money as may be required to pay the principal of such of said bonds sold and outstanding as mature in such year.

Sec. 5. The principal and interest of all of said bonds which may be sold shall be paid at the time the same become due from said "Interest and Sinking Fund of the University of California Building Bonds," and the faith of the State of California is hereby pledged for the payment in full of the principal and interest of said bonds so sold as the same mature. Both principal and interest shall be so paid upon presentation to the State Treasurer on or after the day of the maturity of the same of the bond or coupon so maturing, and the State Treasurer is hereby authorized and required to make such payment. Warrants for such payments shall be duly drawn by the State Controller upon the request of the State Treasurer.

Sec. 6. There shall be provided in the general appropriation bill to be passed at the next regular session of the Legislature sufficient money to defray all expenses that shall be incurred by the State Treasurer in the preparation of said bonds and in the advertising of the sale thereof as in this Act provided.

Sec. 7. The State Controller and the State Treasurer shall keep full and particular account and record of all their proceedings under this Act, and they shall transmit to the Governor, in triplicate, an abstract of all such proceedings thereunder, with an annual report, in triplicate, one copy of each to be by the Governor laid before each house of the Legislature bi-annually. The books and papers pertaining to the matters provided for in this Act shall at all times be open to the inspection of any parties interested, or of the Governor, the Attorney-General, or the Legislature, or of any citizen of the State.

Sec. 8. This Act shall be known and may be cited as the "University of California Building Bond Act," and, after any of the bonds herein provided for have been sold, shall be irrevocable until the principal and interest of all bonds sold shall have been paid and discharged in full, but the Legislature may amend this Act at any time in furtherance of its purpose, and may also repeal this Act at any time after its adoption, provided that there are at the time no bonds which have been sold thereunder outstanding and unpaid in full as to both principal and interest.

In the eighteenth line of Section 3 of the University Building Bond initiative act, as appearing in the initiative petition voted on by the people, was a clerical error in that the phrase "upon the next acceptance of his bid" should have read "upon the non-acceptance of his bid." The Legislature of 1915, by an act approved March 26, 1915, changed the wording to the correct form, namely, "Upon the non-acceptance of his bid," and incidentally, by adopting this amendment, reaffirmed in behalf of the State Legislature the validity of the bonds.

Plans and Specifications for a Classroom Building:

On January 12, 1915, the Regents authorized the Committee on Grounds and Buildings to have plans and specifications prepared by the Supervising Architect, John Galen Howard, for a large classroom building, approximately the size of the University Library, to be built between the Library and the Sather Gate with proceeds from the sale of the University Building Bonds.

Benjamin Ide Wheeler Hall:

On June 8, 1915, the Regents unanimously voted—President Wheeler at the time being in the East—that the classroom building to be erected between the University Library and the Sather Gate be named Benjamin Ide Wheeler Hall, in honor of President Wheeler.

Segregation of the University Building Bonds Money:

On May 11, 1915, it was voted by the Regents that the University Building Bonds money be segregated as follows:

Benjamin Ide Wheeler Hall	\$800,000
Completion of the Library	400,000
Agriculture	350,000
Chemistry	250,000

It was approved that the foregoing figures should include architect's fees, heating, ventilating, and lighting systems for the buildings, the lighting fixtures, built-in lockers, and stationary fixtures, but not movable furnishings.

Issuance of the University Building Bonds:

On June 8, 1915, the following recommendation of the Finance Committee was approved:

"That the Finance Committee be given power to act in the matter of arranging with the State Treasurer and such other State officials as may be concerned for the issuance and sale of the University Building Bonds."

Building Bonds Campaign:

On November 10, 1914, the Regents approved the following recommendations of the Finance Committee:

"That a very special vote of thanks be passed by the Board of Regents to Comptroller Merritt for the intelligence, the sagacity, and the enthusiasm which he has put into the campaign for the University Building Bonds.

"That the thanks of the Board be voted to the newspapers, banks, public service corporations, and civic organizations throughout the State who gave their cordial and sympathetic aid in the campaign for the University Building Bonds.

"That the thanks of the Board be extended to the Alumni Association of the University of California for their work in bringing before the people of California by initiative petition the proposal to vote \$1,800,000 for permanent buildings for the University and for their loyal work in the campaign for the voting of these bonds."

In recommending the foregoing vote of thanks, the Chairman of the Finance Committee, Regent Guy C. Earl, made the following remarks:

"In the report of the Finance Committee is a recommendation that a special vote of thanks be extended to Comptroller Merritt for his very remarkably efficient services in conducting the bond election campaign on behalf of the University Building Bonds. I know something about that matter, having seen Mr. Merritt several times during that important campaign, and I know that he has toiled nights and days and gone without sleep in his devoted work in conducting that campaign. He was one of the chief factors in organizing the Alumni all over the State, with the gratifying result that probably our bonds have carried by more than a two-thirds vote. A very special vote of appreciation is contained in this report."

Revision of Standing Orders of the Board:

On September 15, 1914, the Finance Committee was authorized to have the Standing Orders of the Board revised and codified, such revision and codification then to be submitted to the Board for its approval and confirmation, in accordance with the Standing Orders of the Board.

Standing Order as to Signing for the President:

On September 15, 1914, it was voted to amend Standing Order No. 430 to read as follows:

"In the absence of the President of the University from the seat of the University at any time the Dean of the Academic Faculties is authorized to sign all documents requiring the signature of the President of the University."

The previous rule authorized the Dean of the Academic Faculties to sign when the President of the University was outside the State, and the Chairman of the Committee on Grounds and Building to sign when the President was away from the University but still within the State.

Standing Order as to Alternates:

On September 15, 1914, it was voted to amend Standing Order No. 90 by the addition of the following sentence: (Previously there had been no provision for alternate members for standing committees.)

"The Board shall nominate also to the President of the Board, for his confirmation, two alternate members for each standing committee, these alternates to serve when called upon by the Chairmen of the respective committees because of the absence or inability to act of regular members of the committee."

Standing Order as to Committees:

On June 8, 1915, it was voted to increase the Finance Committee from five to six members, and to create a new committee on Curriculum and Degrees. This was done by amending Stand-

ing Order No. 90 so that the portion of that order concerned should read as follows:

“On Finance: consisting of six appointed members.

“On Curriculum and Degrees: consisting of three appointed members. This committee is to have relation both to degrees in course and honorary degrees.)”

New Committee on University Hospital.

On December 8, 1914, the list of standing committees was increased by the creation of a new Committee on University Hospital, to consist of five members. This was done by amending Standing Order No. 90 by the addition of the following words: “On the University Hospital, five members.”

On December 22, 1914, the duties previously entrusted to a special University Hospital Building Committee were transferred to the new standing University Hospital Committee.

Trustees for the Hooper Foundation for Medical Research:

On August 11, 1914, the Regents confirmed the following list of Trustees for the George Williams Hooper Foundation for Medical Research: Dr. William H. Welch, Professor of Pathology in Johns Hopkins University; Dr. Henry S. Pritchett, President of the Carnegie Foundation for the Advancement of Teaching; Dr. Herbert C. Moffitt, Dean of the University of California Medical School; Dr. George H. Whipple, Director of the Hooper Foundation; Mr. E. D. Conolley of San Francisco, Regent A. W. Foster, and Dr. Benjamin Ide Wheeler, as President of the University of California.

Amendment to Declaration of Trust (Hooper Foundation):

On August 11, 1914, the Chairman of the Finance Committee and the Secretary of the Board were authorized and directed to execute the following amendment to the Declaration of Trust between Mrs. Sophronia T. Hooper and the Regents: (The principal change is that the President of the Carnegie Foundation and the Professor of Pathology of Johns Hopkins University are not

to be ex officio trustees of the Hooper Foundation, although, however, the present incumbents of those two positions are as individuals to serve as members of the Hooper Foundation Board.)

“AMENDMENT TO DECLARATION OF TRUST

“Whereas, The Regents of the University of California, a corporation of the State of California, and Sophronia T. Hooper, did on or about the 12th day of May, 1913, make a certain Declaration of Trust which provided among other things that any and all of the terms, conditions, or trusts therein expressed may be modified by subsequent agreement between said Sophronia T. Hooper and The Regents; and

“Whereas, it is the desire of Sophronia T. Hooper and The Regents of the University of California to modify said agreement by eliminating therefrom certain of that portion thereof entitled ‘Provisions of Management.’

“Now, therefore, it is hereby agreed by and between the parties that the said Declaration of Trust be and is hereby amended by eliminating therefrom the following portion:

“ ‘The work to be done within the purposes hereinbefore mentioned, by said school and by the investigators therein engaged, and compensation to be paid to said investigators, shall be such as may be prescribed by a board to be known as the Directors of the Foundation, which said Board shall consist of such persons as shall, for the time being, occupy the following offices:

“ ‘The President of the University of California;

“ ‘The President of the Carnegie Foundation for the Advancement of Teaching;

“ ‘The Professor of Pathology of Johns Hopkins University;

“ ‘The Dean of the Medical School of the University of California.

“ ‘In addition to the four members above provided for, there shall be three other members of said Board, one of whom shall be appointed from time to time by the Regents upon the nomination of the President of the University of California. The term of office of the person so elected by the Regents shall be one year. Another of said memberships shall be filled by a person appointed by the President of the Carnegie Foundation for the Advancement of Teaching. Such person so appointed, and his successor, shall be appointed for such term as the President of the Carnegie Foundation for the Advancement of Teaching may specify at the time of his appointment. The remaining membership shall be filled by E. D. Conolley during his lifetime.

“ ‘In the event of the refusal of any person hereinabove named to act on said Board, the vacancy thereby created shall be filled as follows:

“The President of the Carnegie Foundation for the Advancement of Teaching, the Professor of Pathology of Johns Hopkins University, and the person appointed by the President of the Carnegie Foundation for the Advancement of Teaching are herein described as the eastern members of the Board of Directors; and in the event that any of said persons fail or refuse to act, the vacancy shall be filled by the person elected by such of said eastern members as shall elect to act; provided, however, that notwithstanding such vacancy is so filled, the officer designated as entitled to act shall, if he be willing at any time to assume such duties, notify the Board of Directors of such fact, and shall thereupon supersede the person appointed to fill the vacancy.

“The President of the University of California, the Dean of the Medical School of the University of California, the person appointed by the Regents, and E. D. Conolley and his successor or successors are hereby designated as the western members of said Board; and in the event that either the President of the University of California or the Dean of the Medical School of the University of California fail or refuse to act, the vacancy shall be filled by the person selected by such of the western members as shall elect to act; provided, however, that notwithstanding such vacancy so filled, the officer designated as entitled to act shall, if he be willing at any time to assume such duties, notify the Board of Directors of such fact, and shall thereupon supersede the person appointed to fill the vacancy.

“Upon the death of E. D. Conolley, or the expiration of the term of his successor appointed as herein provided, the vacancy so occasioned shall be filled by such persons as may be selected by the other western members of the Board of Directors then acting; provided that the successor of said Conolley shall be appointed to serve for the term of ten years.

“The investigators employed in the said School shall be appointed by the President of the University of California, but the persons so appointed shall be selected and chosen from persons recommended by the Board of Directors, and not otherwise.”

“And in lieu and place of said ‘Provisions of Management’ so eliminated, there is hereby inserted in said Declaration and made a part thereof by this amendment the following provisions:

“The work to be done within the purposes hereinbefore mentioned by the George Williams Hooper Foundation, the appointment of its officers and investigators, the fixing of their compensation, the expenditure of income of the endowment, and the entire conduct of the institution shall be conducted by the Board of Regents through a special Board of Trustees acting under the Regents and appointed by them, which said Board of Trustees shall be constituted as follows:

“ ‘The President of the University of California shall be a member and *ex officio* Chairman of the Board of Trustees.

“ ‘The other members of said Board in addition to the President of the University of California shall be six, of whom at least three shall be persons of standing in medical science or medical education, and said six persons shall be elected by The Regents; provided, however, that The Regents shall forthwith appoint as members of said Board of Trustees the following persons:

“ ‘Dr. William H. Welch, Baltimore;

“ ‘Dr. Henry S. Pritchett, New York;

“ ‘Dr. Herbert C. Moffitt, San Francisco;

“ ‘The Director of the School of Medical Research, if nominated by the Board of Trustees;

“ ‘E. D. Conolley.

“ ‘Vacancies in the Board of Trustees shall be filled by the Board of Regents of the University of California upon nominations made by the Board of Trustees; provided, that upon E. D. Conolley ceasing to be a member of said Board, J. E. Bowie, if then alive and willing to act, shall be and become a member thereof in place of E. D. Conolley.

“ ‘In the event that the nomination of the Board of Trustees for any given vacancy be three times refused by the Board of Regents, the Board of Regents may then upon its own motion fill the vacancy in the Board of Trustees.

“ ‘A person appointed member of the Board of Trustees shall hold office until his resignation, unless he be removed either by a vote of the majority of the Board of Trustees themselves, or by a vote of three-fourths of the Board of Regents of the University of California; provided, however, that no member of the Board of Trustees shall be removed, except for one or more of the following causes:

(a) Incompetence—physical or mental; or

(b) Lack of integrity;

provided, further, that the President of the University of California, acting as Chairman of the Board, shall cease to be Chairman or member thereof, if he resigns from his position as President of the University, or is removed therefrom.’

“ ‘IN WITNESS WHEREOF, the parties have hereunto set their hands and seals this 25th day of July, 1914.’”

Disbursements and Accounting for the Hooper Foundation:

On September 15, 1914, it was voted that the disbursements and accounting of the Hooper Foundation be carried on in accordance with the usual methods of the University and through the ordinary University mechanism for such matters.

Mill Site in Eureka:

On February 9, 1915, the Regents authorized and confirmed an agreement with the Henry Swart Lumber Company for the extension of an existing lease and option for a mill site in Eureka, the Regents to signify by July 1, 1915, their intentions as to exercising the option.

Option on Eureka Mill Site Exercised:

On June 8, 1915, the Regents approved the following recommendation of the Finance Committee:

“That the Secretary be authorized and instructed to inform the Henry Swart Lumber Company, a corporation, that the Regents will exercise the option to purchase, at \$50,000, the mill site in Eureka, this option being provided for in an agreement of January 25, 1915, between the Henry Swart Lumber Company, a corporation, and the Regents.

“This mill site is to be purchased for the account of the Hooper Foundation, and upon the sale of the timber or the timber lands deeded to the Regents by Mrs. Hooper as endowment for the Hooper Foundation for Medical Research, reimbursement with interest will be made to the Regents for such moneys as may be advanced by the Regents for the purchase of this mill site. . . .”

Agreement with the Hahnemann Medical College of the Pacific:

During the year plans were consummated for an arrangement whereby the Hahnemann Medical College of the Pacific should convey its real property to the Regents, the homeopathic hospital, however, remaining in the ownership of the present corporation, the Hahnemann Medical College to cease instruction after three years, and to provide for two years for the maintenance of two chairs, one in homeopathic materia medica and one in homeopathic therapeutics, in the University of California Medical School, the instruction to be offered by the holders of these two chairs to be an elective open to any students of the University of California Medical School. The matter first came before the Board on March 9, 1915, when the Committee on Medical Instruction presented the following report:

"Your Committee on Medical Instruction has the honor of reporting that President Wheeler has received from Mr. Marshal Hale, President of the Hahnemann Medical College of the Pacific, and Dr. James W. Ward, Dean thereof, a letter of February 12 in which the Directors of the Hahnemann Medical College of the Pacific tender to the University as a gift their medical college, including buildings, laboratory apparatus, furniture, student enrollment and endowments, etc. President Wheeler has received also a further proposition from Mr. Hale, as President of the Directors of the Hahnemann Hospital, offering to transfer the hospital and all its property and equipment to the University. The college and hospital property is offered 'for the purpose of a homeopathic medical college, to be created and maintained' in connection with instruction in medicine at the University. The Directors have appointed a committee consisting of Messrs. Marshal Hale, F. G. Sanborn, Dr. J. W. Ward, and William H. Jordan for conference with such committee as the Regents may appoint.

"We recommend that the matter be referred to a committee for conference with the committee mentioned above."

The foregoing report was then referred to the Committee on Medical Instruction.

Offer of the Hahnemann Medical College of the Pacific:

Provision for the offering of optional elective courses in homeopathic materia medica and homeopathic therapeutics was authorized by the Regents on June 8, 1915, through authorizing the Medical Instruction Committee to arrange acceptance of the offer of the Hahnemann Medical College of the Pacific to convey its entire real property to the Regents, and to provide for the cost of maintaining until July 30, 1917, a chair in homeopathic materia medica and a chair in homeopathic therapeutics in the University of California Medical School. This matter was consummated through approval on June 8, 1915, of the following recommendation of the Committee on Medical Instruction:

"At a recent meeting of the Regents the matter was referred to the Committee on Medical Instruction of the offer of the Hahnemann Hospital and the Hahnemann Medical College of the Pacific to convey their property to the Regents. We have the honor of reporting that we have stated to the representatives of

these two institutions that in the opinion of the Regents it is best that the Hahnemann Hospital should not be conveyed to the Regents. Conference has led to the opinion on both sides that it is well that the property of the Hahnemann Medical College of the Pacific shall be conveyed to the Regents, and that certain instruction in homeopathic medicine shall be offered as elective instruction in the University of California Medical School. The representatives of the Hahnemann Medical College of the Pacific have agreed that they will provide for the cost of maintaining a chair in homeopathic materia medica and a chair in homeopathic therapeutics until June 30, 1917. We recommend that power to act be given to the Committee on Medical Instruction to consummate an agreement with the Hahnemann Medical College of the Pacific along these lines."

Children's Hospital Protest:

On March 9, 1915, a letter of March 3, 1915, was presented to the Regents signed by Drs. Margaret Mahoney, Clara Williams, Elsie Reed Mitchell, Matilda A. Feeley, and Mary Page Campbell, protesting against an affiliation of the Children's Hospital with the University of California Medical School. It was directed that the letter be placed on file.

On April 13 and June 8, 1915, further letters on the same subject signed by Dr. Margaret Mahoney, et al., were received and ordered placed on file.

Co-operation with the Children's Hospital:

A helpful co-operation with the Children's Hospital, by which increased opportunities for clinical study will be afforded to the students of the University of California Medical School, but whereby the administrative and financial responsibilities for the institution remain with the present management of the Children's Hospital, was approved by the Regents on June 8, 1915, through approval of the following report and recommendations of the Committee on Medical Instruction:

"1. The Board of Managers of the Hospital for Children and Training School for Nurses and the Board of Trustees of that institution have offered to the University of California the use of that institution as a teaching hospital, no financial obligation whatsoever to be incurred by

the University and the administrative and financial control and responsibility of the institution to remain with the present Boards.

"2. We recommend that this offer be accepted on the distinct understanding that the relation of the Regents to the institution is to be in regard to matters of medical education, and that no financial responsibility of any sort for the hospital is incurred by the Regents.

"3. The proposed arrangement is to be subject to the following understandings:

"(a) That the Children's Hospital remain independent financially and administratively.

"(b) That the Children's Hospital be preserved as an entity in the City and County of San Francisco where women and children exclusively shall be cared for, and where the endowment shall be used for the free care of women and children in the wards of such Hospital.

"(c) That affiliation be adopted for a period of one year, maintaining at least the proportion of the heads of present services as now constituted.

"(d) That women shall at all times be eligible to all grades of service in such Hospital.

"(e) That the Internship in such Hospital shall at all times be filled by women, and that such Internship shall at all times be opened on equal terms to the women graduates of any and all medical schools of approved standing.

"(f) That the Resident Physician of such Hospital shall at all times be a woman.

"(g) 1. That the University of California shall have the power to nominate one or two representatives on each service to be endorsed by the Staff of the Children's Hospital and appointed by the Board of Managers.

"2. That the Professors of Medicine, Surgery, Obstetrics and Gynecology, and Pediatrics of the University of California Medical School shall control the teaching beds in the Hospital for Children and Training School for Nurses.

"3. That the present heads hold their present positions as heads of their respective services and the heads of services or assistants may be called on for teaching purposes by the University of California Medical School when the clinical material at the Hospital for Children and Training School for Nurses is used during their services.

"4. That the division of time of their respective services remain as at present—future changes in length or arrangement of services to be arranged by the heads of the particular service in

conjunction with the chief of the Medical School Department to which they belong.

“5. That on resignation or dropping out of any of the heads of services or assistants, appointments shall be made by the Board of Managers upon the recommendation of the Professor of the Department in which the vacancy occurs. The recommendation and appointments to be subject to the provision of Article ‘(e).’

“6. That the services as they exist at the present time in the Hospital for Children and Training School for Nurses shall be classified according to the classification that exists at the University of California Medical School which is at present as follows:

Department of Medicine

University of California Medical School

Professor of Medicine, Herbert C. Moffitt

Medical Diseases of Women

Dermatology

Department of Surgery

University of California Medical School

Professor of Surgery, Wallace I. Terry

Surgical Diseases of Children

Surgical Diseases of Women

Orthopedic Surgery

Diseases of the Eye, Ear, Nose and Throat

Department of Obstetrics and Gynecology

University of California Medical School

Professor of Obstetrics and Gynecology, J. Morris Slemons

Obstetrics

Gynecology

Department of Pediatrics

University of California Medical School

Professor of Pediatrics, William Palmer Lucas

Medical Diseases of Children

Contagious Diseases

“7. That any services developed hereafter shall be classified according to the University of California Medical School classification and shall be under the same form of management as the various services already existing and shall have the same relation to their respective Medical School Department.

“(h) The wards of the Hospital to be used for teaching purposes.

“(i) The University of California to bear all expense connected with the teaching and cost of change in administration incident to the affiliation.”

Estimated Cost of the University Hospital:

On February 9, 1915, it was reported to the Regents by the University Hospital Committee that the architect for the new University Hospital, Lewis P. Hobart, had estimated the cost of the new building, inclusive of kitchen and laundry equipment, refrigerators, shades, and sterilizers, at \$636,720. The President and Secretary of the Board were authorized and instructed to execute such contracts for work on the University Hospital as might be approved by the University Hospital Committee.

Steel Contract for the Hospital:

The Western Iron Works, a higher bidder on the steel contract for the new University Hospital, made charges in the newspapers that California industry had been discriminated against by the action of the Regents in awarding the contract for the steel for the new University Hospital to the United States Steel Products Company. On May 11, 1915, the Chairman of the Finance Committee reported to the Regents that in a conference between the Comptroller and representatives of the Home Industry League and the Western Iron Works, the representative of the Home Industry League had fully confirmed the entire fairness of the Regents in awarding this contract to the United States Steel Products Company.

Transportation of University Hospital Steel:

On May 11, 1915, a contract was authorized with the Western Pacific for transportation of the steel for the University Hospital from Gary, Indiana, at \$8.50 per ton, the United States Steel Products Company to pay the freight on any excess of tonnage above 1100 tons.

Hobart Contract for Hospital Plans:

On May 11, 1915, the Regents authorized the execution of a contract with Lewis P. Hobart for his services as architect for the University Hospital.

Suit for Keith Hospital Subscription:

On August 11, 1914, the bringing of suit against the estate of John M. Keith for \$145,000 and interest, the balance due under his subscription of \$150,000 to the University Hospital Building Fund, was approved and confirmed.

Lease of Nurses' Home:

On August 11, 1914, a lease was approved of a Nurses' Home for the University Hospital, this being a three-story and basement frame apartment-house building at the northeast corner of Willard street and Parnassus avenue, San Francisco, for thirty months from July 15, 1914, at the rate of \$230 per month, and also of property at 1423 Willard street, San Francisco, for two years at \$65 a month for use as an annex to the Nurses' Home.

Petition of the Osteopathic College:

On June 8, 1915, it was reported that the College of Osteopathic Physicians and Surgeons of Los Angeles had conveyed to the Regents the following resolutions adopted by its Trustees:

"Be it resolved that this Board of Trustees respectfully petition the Board of Regents of the University of California, in the event the southern branch of the Medical Department of the University of California is discontinued, that the North Broadway property held by the University, and donated for medical college purposes be made available for the use of the College of Osteopathic Physicians and Surgeons."

It was voted to inform the College of Osteopathic Physicians and Surgeons that the work of the Los Angeles Medical Department of the University of California is continuing and that the proposal which they make could not, in any event, on account of the conditions of the gift, be accepted by the Regents.

City Planning Courses Asked for:

On December 8, 1914, it was reported to the Regents that the first California Conference on City Planning, in session at Del Monte on October 15, had petitioned the University to offer courses in and to make possible the study of city planning, and had voted its thanks to the University for its assistance in arranging for this conference.

Scandinavian Department Petitioned for:

On May 11, 1915, a petition was presented from various students of the University and citizens and residents of the State asking for the establishment of a Department of Scandinavian Languages and Literatures in the University.

Training Course for Commercial Secretaries Asked for:

On August 11, 1914, a letter of August 1, 1914, from the California Association of Commercial Secretaries, requesting that the University should provide a course for the training of persons for positions as Secretaries of Chambers of Commerce, Boards of Trade, or of similar organizations, was referred to the President of the University.

The Dental Students Ask for Faculty Increase:

On March 9, 1915, it was reported to the Regents that a petition had been received from the students in the College of Dentistry asking that the corps of instructors in the department be augmented.

Nine Hundred and Sixty-eight Degrees Conferred:

Degrees were conferred at Commencement of 1915 to the number of 968, that is, twice as many as in 1906-07, when 482 were conferred, and 75 more than for 1913-14, when the figure of 893 established a new record. Of the 968 degrees conferred, the distribution was as follows: Bachelor, 711; Master, 119; Juris Doctor, 20; Ph.D., 22; degrees for graduates in Medicine, Dentistry, Pharmacy, and from the Hastings College of the Law, 88; Graduate in Architecture, 3; Certificate in Public Health, 5.

Honorary Degrees:

On Commencement Day—May 12, 1915—the degree of LL.D. was conferred, in pursuance of action previously taken by the Regents, on Chancellor David Starr Jordan and President John Casper Branner of Stanford University, and on Alfred Deakin, first Premier of the Commonwealth of Australia.

Prizes:

On May 11, 1915, the Regents confirmed President Wheeler's recommendation that prizes be announced at Commencement as follows:

The Bonnheim Dissertation Prizes (founded by Mr. Albert Bonnheim): Upper Division: Carl Blick Beals, '16; Catharine De Motte, '15; Paul Longstreth Fussell, '16; and John Hezekiah Levy, '15. Lower Division: Harold Anthony Hyde, '17; Viola Lula Lockhart, '18; Calmur John Struble, '17; and Pierre Jaqua Walker, '18.

The Bonnheim Discussion Prizes: Upper Division: John Hezekiah Levy, '15. Lower Division: Viola Lula Lockhart, '18.

The Bryce Historical Essay Prize (founded by Regent Rudolph J. Taussig): Constance Douglas, '15.

The Emily Chamberlain Cook Prize in Poetry (founded by Professor Albert S. Cook): Thomas Gordon Luke, '15.

The Irving Prize (founded by Mr. S. C. Irving, '79): Roger Fulton Goss, '16.

The Newman Hall Essay Prize (founded by the Alumni Council of the Newman Club): Mary Pius Carroll, '14.

The Richardson Latin Translation Prize (founded by Professor George Morey Richardson): Charles Josef Carey, '17.

The University Medal:

On May 11, 1915, the President's recommendation was confirmed that the University Medal be awarded to René Guillou of the College of Mechanics, as the most distinguished graduate of the year, with honorable mention for Elmer Prichard Kayser of the College of Letters and Science.

Employment of Aliens:

On March 9, 1915, it was reported by the Finance Committee that Attorney Olney had reported that he did not believe that the act passed by the Legislature of 1901 in regard to the employment of aliens applied to the faculty of the University.

Infirmary Privileges for Employees Terminated:

On September 15, 1914, it was voted to discontinue the fee of fifty cents a month previously charged mechanical employees for Infirmary care, this meaning the withdrawal of Infirmary privileges from employees.

Purchase of Center and Oxford Street Property:

On October 13, 1914, final payment was approved and confirmed on the purchase of property from the Horace Gushee Company, at \$26,000, at the northwest corner of Center and Oxford streets, Berkeley. This was the last step in the purchase of certain properties on Oxford street, as an investment of University funds, the whole transaction being as follows:

<i>Grantor</i>	<i>Description</i>	<i>Price</i>
Mary W. Stevens,	100 feet on the north side of Addison street by 138.5 feet on the west side of Oxford street	\$41,250.00
Sarah E. McLean, the Crawford Company, Berkeley Bank of Savings and Trust Company, and Elinor Carlisle,	125 feet on the west side of Oxford street by 150 feet on the south side of Addison street	45,000.00
Horace Gushee Company,	125 feet on the west side of Oxford street by 50 feet on the north side of Center street	26,000.00
John Freuler and Amelia A. Freuler, his wife,	138.5 feet on Oxford street by 45.83 feet on University avenue	20,812.50

Building Contracts Approved:

Building contracts were approved by the Regents during the year 1914-15 as follows:

For construction work for hospital quarters at the Los Angeles Medical Department:

H. T. Crawford	Plumbing	\$1,126.40
F. B. Potter	Electric wiring	295.70

For nine asphalt tennis courts at Bancroft way and College avenue, built from the Permanent Building Fund:

Monson Brothers	19,918.00
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For the Jane K. Sather Campanile (as a charge against Mrs. Sather's gift of \$200,000 for this purpose):

Standard Electric Clock Company.....	Electric clock	3,650.00
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For further work on the classroom building at the University Farm, for which \$65,000 was appropriated by the Legislature of 1913, and for which a general contract had been awarded to J. W. Carr on May 12, 1914:

Scott Company	Heating installation	1,017.00
C. F. Webber & Company	Hyloplate blackboards	522.22
W. H. McConnell	Electrical work	1,050.00
B. J. Donovan	Painting	1,035.00
Pacific Floor Sanding Company	Maple floors	2,400.00

For the University Hospital in San Francisco:

Foster Vogt Company	Excavations	14,387.00
Pioneer Construction Company	Steel erection	12,645.00
Clinton Fireproofing Company	Foundations	4,250.00
Clinton Fireproofing Company	Concrete work	63,625.00
United States Steel Products Co.	Steel (f.o.b. cars, Gary, Indiana) ..	40,657.00
United States Steel Products Co.	Cast-iron bases	2,593.00

Improvements around the Sather Campanile:

On June 8, 1915, power to act was granted to the Committee on Grounds and Buildings and the Finance Committee in regard to the matter of grading about the Sather Campanile and the construction of balustrades, steps, etc., this as a charge against Mrs. Sather's gift for the Sather Campanile, provided that in the opinion of the Attorney of the Regents such use of a portion of the Campanile Fund is within the terms of the trust.

Motor Generator Set:

On October 13, 1914, it was approved that the cost of a new 100 k.w. motor generator set be divided between the Permanent Building Fund and the gift fund for the Jane K. Sather Campanile in the proportion which the use of electric current for the Campanile elevator will bear to the capacity of this motor generator set. This equipment was ordered from the General Electric Company at a cost of \$2257.

Class of '77 Sundial:

A marble and bronze sundial designed by Clinton Day, '68, F.A.I.A., and gift of the Class of '77, was placed Commencement week, about a hundred feet south of the Sather Campanile.

Planting Plan:

On November 10, 1914, the following resolutions were adopted by the Regents:

"RESOLVED, That it is the sense of the Board of Regents that the plan of propagation and planting be pursued when the financial condition of the University will permit to the extent of the forestation of the hills east and north of the campus proper, the maintenance of the nursery, and the proper setting of the buildings erected under the Hearst Plan, and that when funds are available same will be appropriated for that purpose."

Landscape Gardening:

On May 11, 1915, the Regents approved the following recommendation of the Committee on Grounds and Buildings concerning landscape gardening:

"Professor John Galen Howard has offered to contribute his personal services toward the development of planting plans for the campus with no cost to the University save reimbursement for draftsman's services, and no fee save on walls, balustrades, and grading when part of a building proposition.

"We recommend that during the term of Professor Howard's agreement with the Regents as architect that he be constituted landscape architect and engineer of the University in accordance with the existing agreement. No expenditures on such work are contemplated, except as moneys therefor may hereafter be made available."

Women's Dormitories:

On November 10, 1914, the following recommendation of the Committee on Grounds and Buildings was approved:

"The dormitory committee of the Associated Women Students have asked whether the Regents would permit land near Women's Senior Hall or near Founders' Rock to be used for women's dormitories.

"Because of the great growth of the University and the inadequacy in size of the University campus even for purely academic purposes, we recommend that a negative answer be given. For the same reason we recommend that the Regents now rescind the action taken on April 11, 1911, when the Board approved the following recommendation of the Committee on Grounds and Buildings:

"That the Palmer lot on Piedmont avenue, owned by the University, be regarded as a site for future dormitories for women students of the University."

Insurance on the Library:

On October 13, 1914, it was voted that insurance to the amount of \$50,000 should be carried on the University Library so long as North Hall remains in its present position.

Re-payment to Students for New Track:

On February 9, 1915, the Regents authorized the payment to the Associated Students of \$2742.93 for use toward the constructing of the new track, this being part of the \$11,000 (and accrued income) accepted by the Regents on December 22, 1911, from the Students' Co-operative Society, on the understanding that the money would "be available to be withdrawn when the Society may desire, the intention of the Society being to use it eventually for the equipment of permanent quarters." Subsequently to December 22, 1911, the Co-operative Society had transferred its business and property to the Associated Students, with a proviso that the Associated Students should maintain "until such time as the store shall be established in permanent quarters a cash reserve of at least \$10,000."

Subscriptions for Tennis Courts:

On December 8, 1914, it was voted that \$295.50 raised by Dr. Benjamin Frees, through subscriptions on the part of students, for a new tennis court on the campus, as approved by Dr. Frees be now applied toward the cost of the construction of the nine new asphalt tennis courts.

Boys' Club Work in Agriculture:

On May 11, 1915, the Regents authorized an agreement for co-operation between the Department of Agriculture of the University and the United States Department of Agriculture for co-operative work in the development of boys' and girls' agricultural clubs in California, \$4700 to be expended upon this work during 1915-16, half being provided by each party to the agreement. It was reported to the Regents that such agricultural clubs had been organized by the University in some sixty-five California high schools, and that during 1914-15 approximately \$4000 had been contributed from private sources toward the work of these clubs, and that probably twice as much would be received by gift during the ensuing year.

Student Fees at the University Farm:

On August 11, 1914, it was voted that a registration fee of \$5 for each half-year be required from all students of the University Farm School resident in California, and a fee of \$15 from non-residents, the proceeds to be devoted to infirmary services and instruction and equipment in physical training. For Short Course students a similar registration fee of \$2 was established, and for visitors who stay at the University Farm from one to four weeks, to observe methods of work exemplified in the Farm instruction, a similar fee of \$1.

Deed to State for Highway:

On March 9, 1915, the deeding to the State of California of a nine-foot strip alongside the University Farm for road purposes was authorized by approval of the following recommendation of the Finance Committee:

"That the action of the President and Secretary of the Board be approved and confirmed in having executed, as authorized by the Finance Committee, deed to the State of California for a right of way over a strip of land along one side of the University Farm at Davis, for road purposes, this including 25 feet already being used for road purposes and also an additional nine feet, the land so to be used for a state highway being described as follows:

"The north thirty-four (34) feet of Section 16, and the North thirty-four (34) feet of a portion of the northwest quarter of Section 15, Township 8 North, Range 2 East, Mount Diablo Base and Meridian, extending easterly from the west line of said Section 16 to a public road or street four hundred fifty-one (451) feet more or less easterly from the west line of said Section 15. Containing one and 18/100 (1.18) acres, more or less, not within the present County Road limits.

It being an express condition that the State shall pay the cost of setting back the fence and that the Regents shall be put to no expense in connection with this grant."

License to the Davis Water Company:

On August 11, 1914, a revocable license was authorized to the Davis Water Company for a pipe-line from the corner of Elm and Front streets, Davis, across the property of the University Farm to the station of the Standard Oil Company.

Use of Kearney Vineyard Earnings:

On September 15, 1914, the Regents approved the following recommendation of the Finance Committee:

That all earnings of the Kearney Vineyard since the death of M. Theo. Kearney, which have been applied to the liquidation of the mortgage indebtedness or to capital improvements, be regarded as an investment made by the Regents in the Kearney Vineyard, and not as a part of the original bequest. The amounts involved will be determined after further report from the Auditor and Comptroller.

Income of the Kearney Vineyard:

On September 15, 1914, the Regents received the following report from the Finance Committee in regard to the income of the Kearney Vineyard—5400 acres of land bequeathed to the University in 1906 by Mr. M. Theo. Kearney of Fresno:

Accrued income on April 6, 1914	\$90,823.73
Estimated income of the Kearney Vineyard for 1914-15.....	35,000.00
	<hr/>
Total	\$125,823.73
Payment to the University in full of mortgage standing on the books	\$40,000.00
Payment to the General Fund of the University toward support and maintenance of the Depart- ment of Agriculture for 1913-14	40,000.00
Payment to the General Fund of the University, to- ward support and maintenance of the Depart- ment of Agriculture for 1914-15	40,000.00
	<hr/>
	120,000.00
	<hr/>
Total	\$ 5,823.73

Raisin Crop at the Kearney Vineyard:

On November 10, 1914, it was reported that the 1914 raisin crop of the Kearney Vineyard from 680 acres was 780 tons, which was 140 tons more than the crop of the preceding year, and 80 tons more than the largest crop ever before gathered in the history of the Kearney Vineyard, even during the time when the area planted to raisin grapes was considerably larger than at present.

Agreement with the Fresno Canal and Irrigation Company:

On June 8, 1915, the Regents authorized the execution of an agreement with the Fresno Canal and Irrigation Company whereby that company should take over, maintain, and keep repaired, and be responsible for damages caused by a portion of the "Teilman Ditch," commencing at White's-bridge Road on the East line of Section twelve (12) in Township fourteen (14) South of Range nineteen (19) East, M. D. B. and M., and running thence South one-half ($1\frac{1}{2}$) mile, thence West one-half ($1\frac{1}{2}$) mile, to a point West of the ditch running South on the West line of Valentine avenue, the Regents to retain their present rights to the water in this ditch, and the Regents to pay \$150 per annum to the irrigation company. (This canal runs across certain lands of the Kearney Vineyard.)

Whitaker Forest:

On February 9, 1915, it was voted to give a negative answer to J. C. Needham of San Diego, inquiring in behalf of the heirs of Horace Whitaker as to whether the Regents would relinquish to Mr. Whitaker's heirs the 320 acres of big-tree timber lands given to the University by Mr. Whitaker on July 26, 1910.

Hibbard Contract for Riverside Plans:

On April 13, 1915, the Regents authorized the execution of a contract with Lester H. Hibbard for architectural services in preparing plans for buildings at the Riverside Citrus Experiment Station.

Lease from the Riverside Orange Company:

On June 8, 1915, a lease was approved from the Riverside Orange Company to the Regents for the following-described property (for five years, for experiments in regard to mottle-leaf):

Lots Three (3) and Four (4) in Block Thirty-eight (38) of Arlington Heights, as per map recorded in Book 11 of Maps at page 20, Records of San Bernardino County, California.

Imperial Valley Experiment Station:

On October 13, 1914, it was reported by the Finance Committee that the full forty acres offered by gift of the supervisors and citizens of Imperial County as a site for the Imperial Valley Experiment Station had been deeded to the Regents, and that this land is described as follows:

All that certain lot, piece or parcel of land situate, lying and being in the County of Imperial, State of California, and bounded and particularly described as follows, to-wit:

Part of Tract Forty-one (41), Township Fifteen (15) South, Range Fifteen (15) East, S.B.M., in the County of Imperial (formerly part of the County of San Diego), State of California, as per map of the resurvey authorized by Act of Congress (Act of July 1, 1902, Gen'l. Stats., Vol. 32, p. 728) filed in the United States Land Office at Los Angeles, California, described as follows, to-wit: Beginning at a point one hundred and twenty-five (125) feet East of the Southwest corner of said Tract 41, thence East six hundred and sixty (660) feet along the South line of said Tract 41, thence North one thousand three hundred and twenty (1320) feet on a line parallel to the West line of said Tract 41, thence West six hundred and sixty (660) feet on a line parallel with the South line of said Tract 41 and thence South one thousand three hundred and twenty (1320) feet to the point of beginning. Formerly known (as per map on file in said Land Office at the time of making the entry) as a part of the Southwest quarter of the Southwest quarter of Section 31, Township fifteen (15) South, Range Fifteen (15) East, S.B.M., containing twenty (20) acres of land, subject, however, to right of way for a public highway across the south end of said Tract and subject also to a right of way for ditches, telephone lines, etc., given to Imperial Water Company No. 1.

All that certain lot, piece or parcel of land, situate, lying and being in the Tract No. forty-one (41), Township Fifteen (15) South, Range Fifteen (15) East, S.B.M., County of Imperial and State of California, and bounded and particularly described as follows, to-wit:

That portion of said Tract 41, as per map of the resurvey (authorized by Act of Congress July 1, 1902), approved November 4, 1908, and filed February 23, 1909, in the United States Land Office at Los Angeles, California, and more particularly described as follows, to-wit: Beginning at a point one hundred twenty-five (125) feet east from the southwest corner of said Tract 41, thence Northerly on a line parallel with the west line of said Tract 41 thirteen hundred twenty (1320) feet to the Northwest corner of a tract heretofore deeded to the said parties of the second part for a point of beginning of the tract hereby conveyed. Thence

easterly along the North line of the said tract heretofore conveyed to said second parties six hundred sixty (660) feet to the Northeast corner thereof, thence Northerly on a line parallel with the West line of said Tract 41 six hundred sixty (660) feet, thence Westerly on a line parallel with the South line of said Tract 41 six hundred sixty (660) feet, thence Southerly six hundred sixty (660) feet to the point of beginning of the tract hereby conveyed, containing ten (10) acres.

That portion of Tract 41, Township 15 South, Range 15 East, S.B.M., as per map of the re-survey (authorized by Act of Congress July 1, 1902), approved November 4, 1908, and filed February 23, 1909, in the United States Land Office at Los Angeles, California, and more particularly described as follows, to-wit:

Beginning at a point 125 feet East of the Southwest corner of said Tract 41; thence Northerly on a line parallel with the West line of said Tract 41, 1980 feet to the Northwest corner of a tract deeded to second party herein by Deed recorded in Book 67, page 273, of Deeds, records of Imperial County, California, for point of beginning of tract hereby conveyed; thence Easterly along the North line of said Tract heretofore conveyed to said second party 660 feet to the Northeast corner thereof; thence Northerly on a line parallel with the West line of said Tract 41, 660 feet; thence Westerly on a line parallel with the South line of said Tract 41, 660 feet to a point 125 feet East of the West line of said Tract 41; thence Southerly on a line parallel with and distant 125 feet from the West line of said Tract 41, 660 feet to the point of beginning of the tract hereby conveyed, containing 10 acres.

Concurrent Enrollment in the Lick and Wilmerding Schools:

On December 8, 1914, more effective co-operation between the Wilmerding School of Industrial Arts, for which the Regents are the Trustees, and the California School of Mechanical Arts (the Lick School) was arranged for by the adoption of the following resolution, recommended by President Wheeler and the Committee on Wilmerding School:

“All boys admitted to the Lick and Wilmerding Schools after January 1, 1915, will be enrolled in both schools concurrently, and upon graduation each boy will be granted a diploma jointly in the names of both schools.”

Auditorium for the Wilmerding School:

On September 15, 1914, the recommendation of the Committee on Wilmerding School was adopted that the plan for providing co-operatively for an auditorium for the Wilmerding School, set

forth in the following letter of August 26, 1914, from Director George A. Merrill of the Wilmerding School, be approved:

“Wilmerding School Committee of the Regents of the University of California.

“Gentlemen:

“At a recent meeting of the Directors of the California School of Mechanical Arts I was instructed to put before you a proposition for the construction of an auditorium to be used jointly by the Lick, Wilmerding and Lux Schools. The Lick School owns two-thirds of Potrero Block No. 65 and the Lux School owns one-third of the same block. The Lux School has already erected a building on its portion and the Lick School is looking forward to the construction of several buildings on the portion owned by them. As the expense of building and maintaining an auditorium is more than any one of these endowments can afford, it has been recommended that a single auditorium be erected on the Lick School portion of Block No. 65, said building to be paid for by the Lick School. It is suggested that the annual cost of maintenance of the auditorium, together with reasonable interest on the cost of the building and an appraised value of the land, and a reasonable allowance for depreciation, be pro-rated between the three schools in proportion to the number of students.

“The Trustees of the Lux endowment have already signified their willingness to enter into the proposed arrangement. . . . To construct and equip a building 70 x 100 feet would cost about \$30,000 and the proportionate value of the land would be about \$7,000. Interest and depreciation would be about \$3000 per year, and the cost of maintenance would be about \$900 per year, making a total of about \$3900 per year to be pro-rated between the three schools. In proportion to present enrollment, the Wilmerding School pro-rata would be about two-sevenths, or \$1100 per year.”

Boalt Funds:

On March 9, 1915, the following report regarding the present investment of the balance of the fund of \$100,000 given by Mrs. Boalt for the erection of Boalt Hall of Law was presented by the Finance Committee:

“We report, for the information of the Board, that Charles S. Wheeler and Charles W. Slack, Trustees for Mrs. Boalt, have executed a lease to the City Delivery Company (Louis J. Samuels, President, and A. G. Lilienthal, Secretary) dated February 1, 1915, for the lot on Hyde street conveyed to them in trust on

March 3, 1906 (69' 6" by 137' 6" on the west side of Hyde street, 68' north of Turk street). The lease is for five years at \$60 a month. It is terminable after one year on six-months' notice in writing in the event of a sale. Option is granted to the lessees at any time during the lease, prior to the giving of notice to terminate, to purchase the property for \$35,000. Upon the sale of the property the Boalt Trustees are to pay to the Regents \$30,000 in completion of Mrs. Boalt's subscription of \$100,000 toward the cost of Boalt Hall of Law."

Trust Funds from Classes:

On May 11, 1915, the Regents approved the following recommendation of the Finance Committee:

"From time to time requests are being received from various classes that the Regents should accept trust funds from classes, with the request in some cases that the income be paid periodically to the class for class expenses. We recommend that it be the policy of the Regents to accept such class funds provided that the rate of income thereon shall be subject to determination by the Regents from time to time, and provided also that it be understood that upon the death of the last surviving member of the class, or at such prior time as the class may determine, the fund shall be devoted to some purpose for the benefit of the University."

Goewey Scholarship Increased:

The heirs of James M. Goewey in 1903 gave to the University an endowment for the James M. Goewey Scholarship, the income to be devoted to aiding "some worthy student pursuing studies in some one of the so-called scientific branches of learning." The endowment was originally entered in the books of the University as of a value of \$4510. By June 30, 1914, it had arrived, through profitable sale of some of the securities originally constituting the investment of the endowment, at a principal of \$12,415.50. On January 12, 1915, it was voted by the Regents that unexpended income to the amount of \$4000 should be added to the endowment. On June 30, 1915, therefore, the principal of the Goewey endowment was \$16,415.50. Instead of one scholarship of the value of \$250, two scholarships of the value of \$600 each were authorized by the Board for 1915-16.

LeConte Memorial Fellowship Fund:

On May 11, 1915, it was voted by the Regents to add sufficient accrued income to the principal of the LeConte Memorial Fellowship Fund to bring the endowment to a total of \$10,400.

Denicke Fund for Loans to Faculty:

On April 13, 1915, Regent James K. Moffitt was designated as the Regent Member of the Executive Board for the Ernst A. Denicke Memorial Fund, the principal and income of which are available for loans to members of the University faculty. The other members of the Board are (ex officio) the President of the University and the Dean of the Faculties.

Preston School of Industry Fellowships:

On December 8, 1914, it was reported that Calvin Derrick, Superintendent of the Preston School of Industry at Ione, California, had suggested that closer co-operation be arranged between the University and the Preston School by means of the offering by the Board of Trustees of the Preston School of three fellowships available to students of the University in the following fields of investigation: Agriculture, Law, Political Science, Social Economics, Applied Psychology, and Medicine. These fellowships are to be available July 1 of each year, and to be of the annual value of \$500, plus room and board at the Preston School. Such co-operation with the Preston School was approved by the Regents.

Collateral Loans Authorized:

On December 8, 1914, the Finance Committee was granted authority to make loans on collateral security for the year 1915.

Broadway Terrace Tract Sales:

During the year ending June 30, 1915, a number of deeds were executed to the Country Club Heights Company, conveying title for individual lots in the Broadway Terrace Tract, the

Regents having previously entered into a contract with the Country Club Heights Company to sell to that company this land, which constituted a portion of the endowment of the Agassiz Professorship for Oriental Languages.

Sale of Salt Lake Property:

On May 11, 1915, the Regents confirmed the sale, at \$3750, to Sara Hepworth Carthey of property in Salt Lake City bequeathed to the University by Mrs. Jennie D. Thompson as part of the endowment for the Warren D. Thompson Scholarships. An income of \$3062 per annum is already available for the maintenance of the Thompson scholarships, and the amount will be increased by the income on this \$3750. The land so disposed of is described as follows: Commencing at a point on the eastern boundary line of Lot 6, Block 12, Plat "E," Salt Lake City Survey, 5 rods south from the northeast corner thereof, and running thence northerly on said eastern boundary line 5 rods to the northeast corner of said lot; thence westerly on the north line of said lot to the northwest corner thereof; thence southerly on the western boundary of said lot 5 rods; thence easterly and parallel with the north boundary of said lot 10 rods, to the point of beginning, in the County of Salt Lake, State of Utah.

Sale to Cline Bull:

On June 8, 1915, execution was authorized of the final papers for the sale to Cline Bull at \$1400 of the following described land. The South half of the Southwest Quarter, Section 20, Township 14 North, Range 4 East, M. D. B. and M., 80 acres. This land was part of the original Congressional grant to the University.

Sale of Escondido Land to I. W. Fisher:

On September 15, 1914, the Regents confirmed the sale to I. W. Fisher at \$1800 of land near Escondido given to the Regents by Madam Thérèse F. Colin as endowment for the Thérèse F. Colin Graduate Fellowship Fund, this land being described as

follows: The Southeast Quarter of the Southeast Quarter of Section Thirty-two (32) and the Southwest Quarter of the Southwest Quarter of Section Thirty-three (33), Township 11 South, Range Two (2) West, San Bernardino Meridian, excepting three and one-tenth (3.1) acres off the Northwest corner of said Southeast Quarter of the Southeast Quarter of Section Thirty-two (32), and one and three hundredths (1.03) acres off the Northeast corner of said Southwest Quarter of the Southwest Quarter of Section Thirty-three (33), in Township Eleven (11) South, Range Two (2) West, S. B. B. and M.

Lease of El Dorado County Land:

On August 11, 1914, lease was approved to H. A. Williams for five years, at 12½ cents per acre per annum for 160 acres of land near Diamond Springs, El Dorado County, the Regents reserving mineral rights, the land being described as follows:

The Southeast Quarter of the Southeast Quarter of Section 2, Township 9 North, Range 11 East, Mount Diablo Base and Meridian, containing 40 acres more or less; the North Half of the Northeast Quarter, the Southeast Quarter of the Northeast Quarter of Section 11, all in Township 9 North, Range 11 East, Mount Diablo Base and Meridian, containing 120 acres, more or less.

Lease of Lands in San Luis Obispo and Monterey Counties:

On December 8, 1914, the Regents approved a renewal for three years of the lease to Alice C. Lynch for land in San Luis Obispo and Monterey counties, heretofore leased to her, at 20 cents per acre per annum, the property so leased being land in Section 4, Township 26 South, Range 9 East, and in Township 25 South, Range 9 East, San Luis Obispo County, approximately 1016 acres; and land in Section 32, Township 24 South, Range 9 East, Monterey County, 160 acres.

Lease to Frank Carson:

On June 8, 1915, lease was authorized for five years to Frank Carson of the following-described property: The Northeast half of the Southeast quarter of Section 3, Township 25 South, Range

18 East, M. D. B. and M., and right-of-way was authorized for a ditch across this property, subject to approval of the transaction by the Finance Committee and the Attorney of the Regents. The rental is to be at the rate of 10 cents per acre per annum for the first year, 25 cents per acre per annum for the next two years, and 50 cents per acre per annum for the last two years.

Lease to Sandy B. Sumner:

On June 8, 1915, a lease was approved to Sandy B. Sumner for five years at \$30 per annum, all mineral rights to be reserved to the Regents and property to be fenced by the lessee, for 295.29 acres in San Luis Obispo County, namely, the East half of Section 6, Township Twenty-eight South, Range Eighteen East, M. D. B. and M.

Berkeley Taxes Cancelled:

On September 15, 1914, it was reported that the assessment for Berkeley taxes and for State and county taxes for 1913-14 on properties at Bancroft way and Barrow street, Berkeley, recently purchased by the Regents, had been cancelled.

McKowen Account Closed:

On January 12, 1915, it was voted that the W. A. McKowen defalcation account, \$44,120.10, carried since 1903 as a "Suspense Account," be charged against the "Revenue Account" of the University.

Contract for Fuel Oil:

On March 9, 1915, the Regents approved a contract with the Union Oil Company for fuel oil for three years from December 1, 1914, at the following rates: In tank wagons on the campus, 75 cents; delivered at the Affiliated Colleges, 75 cents; Davis (University Farm), 82½ cents; Kearney Park, 70½ cents.

Contract for Military Uniforms:

On April 13, 1915, a contract was authorized with Roos Brothers for uniforms for the University Cadets for 1915-16 at a unit cost of \$19.45.

Turner Mortgage:

On September 15, 1914, it was approved that the \$60,000 received in settlement of the Turner mortgage, after many years of litigation, be credited to "Revenue" in reduction of the deficit. The Finance Committee presented the following report concerning the Turner matter:

"In explanation of the Turner Estate matter, we would further report that on December 9, 1913, the Regents approved of the execution of an agreement with T. C. Turner, Administrator of the Estate of W. C. Turner, et al., by which the litigation long pending was settled. The agreement provided that the claim of the Regents against the Turner Estate should be fixed at \$60,000, with interest from December 1, 1913, in full settlement of their claim against the estate, and, further, that the Regents should advance the Turner Estate \$23,507 to pay off the claim of J. K. Law against the Estate and that the Turner Estate would pay the claim of the Regents and the amount advanced to pay the Law claim by giving a mortgage for aggregate amount, \$83,507. The agreement was carried out and the mortgage given and it is now in the hands of the Treasurer. This mortgage of \$83,507 will now be regarded as an investment of Endowment Funds.

"The \$60,000 received from the Turner Estate in satisfaction of the claim of the Regents against the Estate will eventually be credited to Revenue to reduce the deficit.

"Any possible loss in the Turner litigation was in 1901 offset by the action of the Legislature in appropriating \$50,000 'for the use, benefit, maintenance and support of the University of California,' 'so much thereof as shall be necessary' to be used to make good any loss from the Turner loan or, 'in the event no loss or diminution arises from the loan to William C. Turner, aforesaid, then the whole of the money hereby appropriated shall be paid into the University Fund.' "

It was then duly voted that the mortgage held by the Regents on the Turner lands in Merced County, in the amount of \$83,507, be regarded as an investment of Endowment Fund moneys.

DEAN OF THE SUMMER SESSION

BERKELEY, July 1, 1915.*To the President of the University,*

SIR: The total enrollment at the Summer Session of 1915 was 5364. Approximately 40 per cent of all the students registered from the United States came from other states than California. At no previous session has the attendance from abroad risen above 25 per cent of the total enrollment. Every state but two was represented, and seventeen foreign countries.

In anticipation of a large attendance due to the Exposition the curriculum was expanded in many directions. In one respect, however, our programme failed to meet the demands. Many well qualified students were disappointed not to find a wider range of opportunities for graduate work. This was due partly to the fact that there are varying opinions with regard to the propriety of offering seminar courses during the summer session, but partly also to the impossibility of financing any large number of graduate courses out of the income from the fee of fifteen dollars.

Respectfully submitted,

C. H. RIEBER,

Dean of the Summer Session.

WILMERDING SCHOOL

SAN FRANCISCO, July 1, 1915.

To the President of the University.

SIR: The Wilmerding School of Industrial Arts began operations in January, 1900, when its first class of boys was enrolled. By agreement with the trustees of the California School of Mechanical Arts, commonly called the Lick School, there was inaugurated a plan of co-operation whereby the efficiency and usefulness of both endowments has been greatly enhanced. The Lick School having made provision for a series of machinery trades, it was decided to have the Wilmerding School emphasize the building trades. In the academic departments it was deemed to be in accordance with the terms and spirit of the Wilmerding endowment to limit the instruction to the actual needs of prospective workers in mechanical trades, without attempting to meet the requirements for admission to the University. The Lick School, however, had always offered a thorough college-preparatory course for engineering students, and this course was open to Wilmerding students. In the choice of studies and trades were granted wide freedom of exchange between the two schools, but in order to preserve the identity of each trust and to maintain a separate student body for each school, each student was required to limit his registration to one school or the other.

While this plan was beneficial to the extent of widening the opportunities of the student, nevertheless it was found to work a hardship in some cases. The lines of division between the two schools were somewhat anomalous, being a vertical one in the shop work and a horizontal one in the academic branches—this division being prompted in the one instance by financial neces-

sity, and in the other by the terms of the respective trusts. Finally the number of students who found it advantageous to divide their time between the two schools increased to such an extent that, notwithstanding our efforts to minimize the effects of these anomalous lines of division, it became advisable to remove all barriers and limitations that could possibly be removed without obscuring the identity of the respective trusts. Hence, beginning January 1, 1915, there was put into effect a plan whereby all boys admitted will be enrolled concurrently in both schools, and upon graduation each boy will be granted a diploma jointly in the names of both schools. The amount of prescribed academic work for boys taking trades, whether in the building line or in the machinery line, will be no greater than is now required in the Wilmerding School, but more advanced work, up to the requirements for admission to the engineering colleges of the University of California, will be provided by the Lick School for those who may want it. Each school will contribute to the general result according to the spirit of its endowment. Each will have its own faculty and will be under its own roof, but duplication of departments will be avoided.

For a number of years a considerable part of our instruction in shopwork has been devoted to the construction of a new brick building for our own use. From time to time parts of this building have been occupied as fast as they have been completed. During the year 1915-16 we shall move the last of our shop departments to the new building, leaving only the academic departments in the old building. This change will be taken advantage of to modernize both equipments and the curriculum of all the shop departments.

Since woodwork is now being taught in the grammar grades of most schools, it will be better for us to reduce the amount of instruction given by us in that line, in order that we may give more attention to metal work. In the electrical department more of the mechanical side of electrical work will be substituted for a large part of the house wiring, etc. There will also be added a new shop which will be devoted to the assembling and operation of all kinds of machinery, for which the parts will be made in

he various departments of both schools. In addition to the steam engines and other machines that are now being built in the shops of the Lick School, this new department will enable us to give further instruction in the construction of gas engines and electrical power equipments of various kinds, and their application to automobiles, motor boats, pumps, etc. Henceforth, therefore, our shop work will no longer be confined to the building trades.

The enrollment of the Wilmerding School for the year 1914-15 was 191 boys.

Respectfully submitted,

GEO. A. MERRILL,
Director.

DEAN OF WOMEN

BERKELEY, July 1, 1915.

To the President of the University,

SIR: I have the honor to present the following report on the progress of the women of the University for the year 1914-1915.

No new system of organization has been undertaken during the year. The energy and activity of our office, with the constant help of student committees, has been devoted to strengthening and improving already existing methods of meeting, helping, and guiding students and providing for the general welfare of the women. The Senior Advisory Committee contributed, perhaps, the most spectacular and joyous expression of this intensive work at the Associated Women Students' dance in February, when every freshman woman was invited to attend by an upperclass woman. About twelve hundred assembled in Harmon Gymnasium, each happy in having made friends and in having found a place for herself in what a few months earlier had seemed a heartless throng. This one evening could surely not have been so successful had not the work of the senior advisors established a lasting confidence and friendliness between the older and the younger women.

The Women's Boarding House Committee, also, has by careful study of its field been able to pave the way to less isolation and more co-operation for students who are living in boarding houses. Because these students make their arrangements with private boarding-house keepers their isolation and independence is likely to be quite impenetrable. This is a loss to them and a loss to the University. Numerically, those living in boarding houses represent one-third of the total number of women students.

Their interests and opinions are quite as important as those of any other group, *e.g.*, of those who live at home or in organization houses. The Boarding House Committee, therefore, assigned the larger houses to its various members, made a house to house campaign to discover how many houses already had or were willing to organize student government leagues; and finally called a meeting of representatives from all houses accommodating more than five students. Suggestions were made for drawing up a constitution sufficiently flexible to meet the needs of all houses and the whole subject was carefully discussed. In the meantime, in order to keep both sides abreast of the movement, my assistant, Mrs. Davidson, who as Inspector keeps closely in touch with the management of the boarding houses, and I, met the boarding house keepers, finally getting a group of twenty together for conference. It must be frankly admitted that neither students nor boarding-house keepers were wholly enthusiastic about bringing student self-government into situations where heretofore in many cases the rule had been independence of and irresponsibility to both the interests of the women of the University and the interests of the smaller group in the boarding-house.

By dint of patient conviction, however, the Boarding House Committee won over a few dauntless spirits both among the students and the heads of houses. On account of the unflagging support of these pioneers it will be possible during the next year to reach a majority of the boarding women and to bring them into interested co-operation with the student life and standards of the University. Meanwhile, should dormitories suddenly be bestowed upon the University the women would to a large extent have already created their system for control without over regulation of dormitory life.

My own constant interest in encouraging the women to manage their own affairs with the best wisdom and foresight that can be mustered, brings me to a problem of control and standards where I believe all of us, faculty and students alike, are singularly confused in our analysis. When the question is one of social standards and social restraint the men are sure to shift the responsi-

bility, saying, "This is the women's province, let them set the pace and we will fall in line." The women have set the pace in some cases; the men have not fallen in line, and the women have dropped back with nothing gained, and a good deal lost by way of misunderstanding and friction. Neither the men nor the women are exclusively to blame for this. But the old convention which insincerely places women in the position of social censors is to blame. I am convinced that nothing will be accomplished in raising the social standards at the University till men and women take up these problems together. For instance, the limitation of social events to certain days, the standardization of dancing, the type of recreation indulged in on the campus, are obviously all questions which must be handled by men and women in joint council. The Students' Welfare Committee should and would constitute such a council if it had the thorough-going understanding and support of the faculty and student body.

The year has seen a real development for the women in academic work. Several courses of study are emerging which, while they are not exclusively for women and never should be "feminized," offer them the opportunity of training for professional work to which they are adapted. Some of these courses of study may be found in the departments of Economics, Hygiene and Public Health, Psychology, Agriculture, Nutrition, and Domestic Art. Recognition such as this of their intellectual and professional needs can not fail to raise the standards of the women as a whole. It will encourage earnest purpose by focusing scholarship not only on providing a means of livelihood or on acquiring mental adornment, but on making knowledge a power for indispensable service.

Respectfully submitted,

LUCY WARD STEBBINS,

Dean of Women.

CALIFORNIA MUSEUM OF VERTEBRATE ZOOLOGY*

BERKELEY, July 1, 1915.

To the President of the University.

SIR: The term of support (seven years) guaranteed by the Founder of the California Museum of Vertebrate Zoology terminated on March 23d last. This date had naturally been looked forward to by some as a critical one in the history of the Museum. That there was no need for immediate anxiety was demonstrated at the beginning of the current year, when Miss Alexander indicated her intention of further providing for the major needs of this Department of the University by drawing up a generous budget for the incoming year. Miss Alexander's deep interest in the work, and her approval of the results of it, lead me to anticipate a continuance of our activity along lines closely in accord with those originally prescribed.

The Museum continues to owe its chief support to private benefaction. Between the dates of July 1, 1914, and June 30, 1915, the sum of \$7910 has been received from Miss Alexander for the purpose of general maintenance. The sum of \$1380 has been contributed by a friend of the University, whose name is, by request, withheld, for the purpose of paying the salary of one member of our staff. Toward a fund from which to defray the expenses of a natural history survey of the Yosemite region, Senator James D. Phelan gave \$100, Mr. Geo. W. Marston gave \$50, and Mr. Stephen T. Mather contributed \$100. This same fund has been very generously augmented by special gift from Miss Alexander, transmitted as part of the general Museum ap-

* A list of gifts presented to the Museum of Vertebrate Zoology will be found on pages 283-287.

propriation; and further promised increments now guarantee the satisfactory completion of this piece of work as originally laid out.

Field work during the preceding year pertained practically altogether to the Yosemite region of the Sierra Nevada. An aggregate of ninety-two field days were put in by the Director, Dr. Taylor, and two assistants, during the months of October, November, December and January. On May 15th field work in the same section was resumed by a party with Mr. Tracy I. Storer in charge, and is continuing at the present writing.

Our object in undertaking this survey of the Yosemite region is to find out exactly what species of mammals, birds, reptiles and amphibians exist in the area explored; to learn as much as possible concerning the local distribution of these species; to map out the general life areas of the region; to learn as much as time permits of the habits and ecologic relationships of each of the species, in other words their natural history; and to put all this information upon permanent record in a form to be acceptable to the public, both lay and scientific.

The Yosemite National Park is visited by thousands of people each year, a certain portion of whom will find a description of its natural history of immediate informational service. An account of the animal life of so famous a region as that containing the Hetch-Hetchy and Yosemite valleys will doubtless prove of wide interest, also, to many people not privileged to visit this National Park themselves but who possess a lively regard for the things of animate nature in general. Only the merest fragments of information have up to the present time appeared in print concerning the birds of the region, and very little has appeared as regards the mammals and reptiles. From a scientific standpoint a detailed and comparative faunal study of the central Sierra Nevada, on both of its slopes, will be a highly desirable achievement. This will fill in a broad gap now existing in our knowledge of the vertebrate animals of California.

It is gratifying to be able to record that considerable interest is being shown in the proposed Yosemite work, some of it in a very material way. Aside from the gifts referred to above, we

have received the greatest encouragement from officials of the United States Department of the Interior and of the Sierra Club. In fact the latter organization has agreed to see to the publication of the popular version of the results of our findings.

In addition to the major undertaking of the year as above outlined, we have found it possible to send collectors to a number of localities in the State for particular material; thus Sisson, near Mount Shasta, Los Baños, Merced County, the salt marshes surrounding the south arm of San Francisco Bay, and San Jacinto Peak, may be mentioned as localities receiving minor attention.

During the year just closed there have been 162 separate accessions of material. These represented 2422 specimens, all of which are catalogued up to date. The total number of catalogued specimens contained in the Museum on June 30, 1915, is 54,555. These are distributed by departments as follows: mammals, 21,888; birds, 25,495; reptiles and amphibians, 5558; sets of birds' eggs, 1614. Extensive use of our collections continues to be made in research elsewhere, as well as by our staff members. Loans to the number of 47 were made during the year to 27 different institutions and individuals. These loans totaled 1391 specimens, representing every department.

As has been the custom, research has claimed about half the attention of our staff members during regular time. A total of 35 papers was published by us during the year. In addition, 10 signed reviews were contributed to periodicals in the fields concerned. Investigators outside of our staff published 6 papers based in large part upon Museum material.

A number of the items of research reported last year as under way have been completed during the present year. Work continues in connection with the undertaking to prepare a book on the game birds of California. The compilation of data concerning the distribution of birds in California is completed and the results are now in press. Titles of those papers that have been published during the year will be found in the personal bibliographies of the staff members, as submitted elsewhere.

The personnel of our staff remains as before, save for the following two changes, which together constitute an addition. Dr. Harold C. Bryant has become Game Expert, under the California Fish and Game Commission, and by a co-operative arrangement, of mutual advantage, his office is retained in the Museum building and his lines of activity follow closely what they were before. Dr. Bryant's title in his connection with the University becomes that of Economic Ornithologist. The amount of Dr. Bryant's salary being now met by the Fish and Game Commission, it has become possible to secure an additional staff member. The services of Mr. Tracy I. Storer have thus been acquired by the Museum as Assistant Curator of Birds.

As heretofore, our endeavor is to meet, in fullest measure possible, what are recognized to be valid demands upon our Department on the part of the University and the people at large.

Respectfully submitted,

J. GRINNELL,

Director.

GIFTS TO THE UNIVERSITY*

GENERAL LIST†

Alexander, Miss Annie M., support for the California Museum of Vertebrate Zoology, at the rate of more than \$7000 per annum. It was reported to the Regents on August 11, 1914, and on March 9, 1915, respectively, that Miss Alexander's gift for the half-year ending June 30, 1914, was \$3540, and for the half-year ending December 31, 1914, \$4040.

Five hundred dollars toward the expense of a natural history survey of the Yosemite National Park by the California Museum of Vertebrate Zoology.

Alumnus, An, \$1200 to be added to the Alumnus Book Fund, the income only to be expended (except as the donor might otherwise authorize), and this income to be applied to the purchase of books in Belles Lettres, History, and Philosophy, share and share alike.

Associated Women Students of the University of California, \$1000, accepted by the Regents on April 13, 1915, subject to the conditions set forth in the latter portion of a letter of April 12, 1915, signed by Sophia McEntyre, Hertha Todd, and Katharine Carlton, as follows: "It is understood that this money will be deposited with the Regents of the University of California for eventual use in providing either for adequate housing facilities for women students, or for any other object of University benefit which may hereafter be decided upon by the Association. It is understood that the interest will be added to the principal of this fund annually at a rate to be determined by the Regents. It is understood that the Association reserves the right to determine by vote of its committee, duly transmitted to the Regents, the exact conditions as to the use of the money for any one of the above-named objects."

Best, W. N., a complete fuel oil burner, with valves and connections made especially to fit the furnace of the 125 horse-power water-tube boiler in the Mechanical and Electrical Engineering Building.

* Compiled by the Secretary of the Regents from the official records.

† For gifts to the University Library, see pp. 114, 116 and 117.

Bonnheim, Albert, an offer to present to the University an endowment for the Bonnheim Scholarships, the amount of the fund immediately to be created to be approximately \$70,000, Mr. Bonnheim announcing further the intention of bringing the endowment to an eventual total of approximately \$160,000. For many years past Mr. Bonnheim has maintained a large number of scholarships in the University of California, his warm friendly interest in the individual students who have held these scholarships and his constant kindness, friendliness, and sympathy making the opportunity of a Bonnheim Scholarship doubly valuable and doubly valued. It is now his intention to provide for the permanency of the work which he himself has carried on for many years through placing the maintenance fund for the scholarships in the trusteeship of the Regents.

One hundred and sixty dollars for the Upper Division Bonnheim Essay and Bonnheim Discussion Prizes.

Ninety dollars for the Lower Division Bonnheim Essay and Bonnheim Discussion Prizes.

Boye, Claude M., of Mills Station, bequeathed to trustees \$10,000, and to Judge Peter J. Shields \$20,000. It was reported to the Regents on February 9, 1915, that Judge Shields had stated that the income of the entire \$30,000 will be devoted to scholarships in agricultural pursuits for graduates of the Kinney school near Mills Station. It was reported also that what was intended was scholarships at the University Farm.

Bradley, F. W., '86, \$1000 as the second of ten annual contributions which he has offered to make toward a Mining Students' Loan Fund for the benefit of students of mining and metallurgy.

Brush, Charles E., a very complete stereopticon and accessories and an unusually excellent camera for landscape and other related photography.

Carnegie Foundation for the Advancement of Teaching, \$18,159.06 for the maintenance for 1914-15 of retiring allowances for members or the widows of members of the faculty of the University of California.

Carnegie Foundation for International Peace, \$550 to provide for a series of lectures at the University of California Summer Session of 1915 by George Malcolm Stratton, Professor of Psychology (on the Mills Foundation), in the University of California, on "The Psychology of the War Spirit."

Cebrian, Mr. J. C., 385 volumes, of which 80 are French works in science, history, and politics, and 305 Spanish books or books about Spain, old and new; and a further gift of 181 volumes of Spanish Literature, Lexicography, Bibliography, Sciences, and Fine Arts, many of them originals and of unique value.

Christy, Professor Samuel Benedict, Dean of the College of Mining, a bequest of his scientific library of 769 volumes for the use of the Department of Mining and Metallurgy. Mrs. Christy joined in making this benefaction to the University.

Class of 1913, \$1190 as a Class of 1913 Fund, received by the Regents on condition that the fund shall bear such interest as may be determined by the Regents, and that such interest shall be payable yearly to the Treasurer of the Class of 1913, subject, however, to the further condition that upon the death of the last surviving member of the class, or at such time prior thereto as may be set by the Class of 1913, the fund shall be added to the permanent endowment of the University.

Claypole, Friends of Dr., provision for the support of the Edith J. Claypole Fund for Research in Pathology to the amount of \$1200 per annum, and provision for eventual endowment to the amount of \$25,000. This benefaction was announced to the Regents on May 11, when President Wheeler reported that he had received the following letter of April 28, 1915, addressed to himself:

"Inasmuch as the University of California has had for the past three years the services of Dr. Edith J. Claypole, a woman rarely endowed for the field of science, of great and noble personality, unswervingly loyal and devoted to research in medicine, to the welfare of humanity, we the undersigned wish to preserve to this institution for all time some concrete evidence of her inspiration and leadership.

"We wish to establish a Fund in memory of Dr. Edith J. Claypole, this fund to be devoted to Research in Pathology, especially in the infectious diseases of man. The enclosed notes for \$10,000 give the conditions and considerations of the formation of the Fund, which fund is hereby presented to the Regents of the University of California.

"In addition to this, will give to the Fund \$1200 per annum until the first interest payment falls due July 1st, 1916. He will then pay annually in addition to the interest available, enough to make \$1200 yearly. In this way \$1200 will be provided yearly, to support research in the Department of Pathology.

"We very much hope that this annual sum shall be a distinct increase in the opportunities of research in the Department of Pathology and shall not be substituted to maintain any research position already established.

"We wish that the names of the donors of this fund shall not be made public but they shall be known as friends of Dr. Claypole.

"Sincerely yours,

(Signed) "....."

....."

The two notes referred to were as follows:

“The Edith Claypole Memorial Research Fund in Pathology,
“\$2000

“April 12, 1915.

“On or before April 1st, 1917, I promise to pay to the Regents of the University of California \$2000, with interest at the rate of 5 per cent per annum, after June 30th, 1915, payable annually.

“The consideration and conditions of this note are:

“First, That a fund shall be established by said Regents to be known and maintained perpetually as the Edith Claypole Memorial Research Fund in Pathology, three-quarters of whose income shall be used annually, under joint direction of the President and the Professor in charge of the Department of Pathology and Bacteriology, for the encouragement of investigation of problems in pathology by women physicians, and particularly toward researches in the diagnosis and specific therapy of infectious diseases of man. One-quarter of said income to be added to the Fund until the latter shall reach Twenty Thousand (\$20,000) Dollars, after which all the income shall be used for the purpose named, the principal being kept without impairment.

“Additions may be made to the Edith Claypole Memorial Research Fund in Pathology at any time, by any person.

(Signed) “.....”

“\$8000

“April 6, 1915.

“On or before April 6th, 1935, I promise to pay to the Regents of the University of California, Eight Thousand Dollars, with interest at the rate of five per cent. (5%) per annum, payable annually.

“The consideration and conditions of this note are:

“First, That a fund shall be established by said Regents to be known and maintained perpetually as the Edith Claypole Memorial Research Fund in Pathology, three-quarters of whose income shall be used annually, under joint direction of the President and the Professor in charge of the Department of Pathology and Bacteriology, for the encouragement of investigation of problems in Pathology by women physicians, and particularly toward researches in the diagnosis and specific therapy of infectious diseases of man. One-quarter of said income to be added to the Fund until the latter shall reach Twenty Thousand (\$20,000) Dollars, after which all the income shall be used for the purpose named, the principal being kept without impairment.

“Second, That shall within two years from this date pay and deliver to the Edith Claypole Memorial Research Fund in Pathology aforesaid Two Thousand (\$2000) Dollars in cash or securities.

(Signed) “.....”

On June 8, 1915, the Regents approved the following recommendation of the Finance Committee in regard to the offer of endowment for the Edith Claypole Memorial Research Fund:

"We recommend that the Regents accept this generous offer, agreeing thereby to apply the income of such endowment as is so created, together with such moneys as are given for current use, for the purposes intended when and as such income and gift money for current use are received. We recommend that the thanks of the Regents be extended to the donors."

Colin, Estate of Madam Thérèse F., \$157.65 as an addition to the fund previously given to the University by Madam Colin as endowment for the Thérèse F. Colin European traveling graduate fellowship fund.

Congregational Education Society, \$75 for scholarships.

Davis, William R., '74, a bequest of \$6000 as endowment for a scholarship.

The conditions of the gift, as set forth in the will and as accepted by the Regents on April 13, 1915, are as follows: "Fourth—I give to the University of California the sum of \$6000 as a perpetual scholarship fund to be invested or deposited as its Board of Regents shall from time to time deem best, the income from which shall be awarded and set apart from time to time, in succession, by the Board of Regents not as a fellowship benefit but as a scholarship benefit to aid such deserving student of the University of California in good standing as the board shall designate and find in need of such benefit. Should the Board at any time find that the student so designated has withdrawn or been suspended or expelled from the University, or is no longer in need of such aid or has died or become idle, indifferent, dissipated or dissolute or from any cause unworthy in the judgment of said board of further receiving the benefit theretofore awarded to him or her, then and in such event, the award and allowance of benefit of such scholarship shall be revoked and terminated by the Board of Regents, and thereupon such income shall again be awarded and allowed as in the first instance to another student of the University of California upon the same conditions, terms and provisions as in the first instance. No aid hereunder shall be had or received by any student after he or she shall have received or been awarded a degree of the University of California, nor by any one student for a period longer than four years in the aggregate. I do not make this amount larger, knowing that the income therefrom will be sufficient help for the character of student I have in mind and wish to aid."

Dibblee, Benjamin H., the original papers of the "Home Guard," founded in California during the Civil War.

Dohrmann, heirs of the late Frederick W., Regent of the University from 1903 to 1914, \$5000 as a fund "to aid members of the faculty in avail-

ing themselves of special opportunities or to lessen the sollicitudes and burdens which might impair in any way their effectiveness as teachers and scholars." The gift was announced to the Regents in the following letter:

"San Francisco, March 24, 1915.

"To the Regents of the University of California,

"Dear Sirs: Our father, Frederick W. Dohrmann, your colleague in the Regency, left in his last will a provision whereby his three surviving children might be empowered to give to the University of California the sum of Five Thousand Dollars. In conversation with us and in memoranda which he left, it was indicated that this money, either the principal and the income, or, as his children might determine, the income alone, be used for the benefit of members of the faculty in some way or manner similar to the use to which the Denicke Loan Fund is put. He evidently had in mind helping members of the faculty by an occasional addition to their incomes on some special occasion or at times of crisis such as might be created by serious illness in the family. It was our father's distinct desire that this should be done without creating any expense to the Regents. He left us free to determine according to our best judgment the use to which the money should be put. In confronting our duty of making determination in this matter we wish to be guided by the spirit of our father's action in himself avoiding undue inelasticity in the terms of the gift. We desire that the fund shall be so used as to aid members of the faculty in availing themselves of special opportunity, or to lessen the sollicitudes and burdens which might impair in any way their effectiveness as teachers and scholars. Having this in mind as the main purpose of the fund, we desire now to place in your hands this amount of Five Thousand Dollars, with the request that its annual income should be applied by the President of the University to the assistance and encouragement of members of the faculty in such way and in such amounts as he may think best. While desiring that the income as far as the President sees fit be used as gifts in various instances, we also desire that it be so arranged that the principal sum of \$5000 may be drawn upon from time to time by the President, in amounts such as he deems best as a temporary loan to members of the faculty in case of their necessity and that this loan be repayable by the recipient without interest for the first year. We assume in this that the President will so manipulate the Fund that there will not at any time be so great an encroachment upon the principal as to very materially lessen the annual income therefrom.

"Very truly yours,

"Mrs. MINNA D. PISCHEL,

"Mr. A. B. C. DOHRMAN,

"Mr. F. DOHRMANN, Jr."

Dwinelle, Charles H., an interesting medal and two rare coins.

Erskine, W. J., a collection of 52 Alaskan birds, for the California Museum of Vertebrate Zoology.

Fisk, Mrs. Elizabeth C., a small bronze Spanish cannon and a small bronze Spanish mortar, given in memory of her son, the late Major Asa F. Fisk.

Fitzhugh, W. M., \$275 for a marble chair in the Greek Theatre in honor of Eugene Woldemar Hilgard, Professor of Agriculture, Emeritus.

Fowler, Mrs. Margaret B. and Miss Kate Fowler, \$150 toward the expense of illustrations and printing for a paper by Dr. Olive Swezy and Professor C. A. Kofoed of the Department of Zoology, to be published by the American Academy of Arts and Sciences of Boston.

Fox Memorial Beds: On June 8, 1915, the Finance Committee reported to the Regents the offer of a friend of the University who had requested that his name be not made known of an endowment of approximately \$100,000 to be known as the Dr. C. W. and Mrs. Sarah E. Fox Memorial Fund, for the maintenance of the Dr. C. W. and Mrs. Sarah E. Fox Memorial Beds in the University of California Hospital. It was reported that this gift had been tendered in the following letter, received on June 7, 1915:

“To the Regents of the University of California,

“Gentlemen: In memory of Dr. C. W. and Mrs. Sarah E. Fox, I am prepared to hand you one hundred bonds of the Spring Valley Water Company, of the par value of one thousand dollars each, or a total of one hundred thousand dollars par value, to be held by you upon the following trust, to-wit:

“You are to hold the said bonds, or the proceeds thereof, as a perpetual fund the income whereof shall be applied to the maintenance of free beds at the hospital to be maintained in connection with the Medical School of the University of California. You shall have the right to establish such reasonable rules and regulations concerning such free beds as you may deem wise, provided, however, that, in case there are at any one time more applicants for the use of such beds than there are beds available, preference in the use of such beds be given to needy medical students so far as possible. You are also authorized from time to time to make such sale, disposition and re-investment of the principal of said fund as you may deem most advantageous for the purposes of the trust, and to accumulate the income when the same is not required or cannot be advantageously used for the purpose of the trust.

“I direct that the said fund shall be known as the ‘Dr. C. W. and Mrs. Sarah E. Fox Memorial Fund’ and that the free beds maintained thereby be known as the ‘Dr. C. W. and Mrs. Sarah E. Fox Memorial

Beds,' and I request that, if practicable, such beds be maintained in a separate ward, with a suitable plate over the door or in the ward indicating that the beds therein are maintained as free beds in memory of Dr. and Mrs. Fox.

"I would ask that you indicate to me your willingness to accept this gift, if it is agreeable to you to do so.

"Respectfully,

(Signed) "....."

"June 5, 1915."

The Regents voted to accept the offer set forth in the foregoing letter of June 5, 1915, and to extend to the donor expression of their heartfelt appreciation of the splendid foundation which he has created for the alleviation of the sufferings of mankind.

Friend of the University, A, \$2400 as a yearly contribution toward research in palaeontology.

Friend of the University, A, \$2400 for the maintenance of beds for cancer cases in the University Hospital.

Friend of the University, A, \$60 for the University Hospital.

Friend of the University, A, \$50 for the crutch and splint fund of the University Hospital.

Friend of the University, A, \$120 toward the salary of an assistant in the office of the Dean of Women.

Friend of the University, A, \$714.25 for the work of the California Museum of Vertebrate Zoology, of which \$690 was for the salary of the Assistant Curator of Birds and \$24.25 for the destruction of sparrows on the campus.

Friend of the University, A, \$696.30 for the salary of the Assistant Curator of Birds in the California Museum of Vertebrate Zoology and for the destruction of sparrows on the campus.

Gray, Mrs. Edward, the diary and letters of the late Rev. Dr. Samuel H. Willey, Vice-President of the College of California and its first executive officer.

Hearst, Regent Phoebe Apperson, \$2500 as a contribution toward the cost of the Women's Swimming Pool adjoining Hearst Hall. How welcome this gift was is attested by the fact that over a thousand women students registered for instruction in swimming when the Summer Session opened.

Additions to the vast collections which she has given in the past to constitute the Museum of Anthropology.

\$1680 for maintenance of the Museum of Anthropology.

Various gifts for the mining museum.

\$1000 for further equipment for the Hearst Memorial Mining Building.

A contribution at the rate of \$1000 per annum each toward the salaries of the Professor of Architecture as Supervising Architect and the Professor of Mining.

Maintenance of the Phoebe Apperson Hearst Scholarships at the rate of \$2400 per annum.

Twenty-four hundred and forty-three dollars and seventy-seven cents for work on the improvement of the grounds around the Hearst Memorial Mining Building, Mrs. Hearst having given \$10,943.77 during the year ending June 30, 1914, for the same purpose.

Provision for the publication in Madrid of a definitive critical edition of Cervantes, one of the editors of this edition being Rudolph Schevill, Professor of Spanish in the University of California.

Hosmer, Mrs. A., several thousand molluscan shells, selected from the museum of the late Henry Hemphill.

Knights of St. Patrick, \$100 for the purchase of Irish books for the University Library.

Marston, George W., \$50 toward the expenses of the natural history survey of the Yosemite National Park conducted by the California Museum of Vertebrate Zoology.

Mather, Stephen T., '87, \$100 toward the cost of the natural history survey of the Yosemite National Park being carried on by the California Museum of Vertebrate Zoology.

Mills, Ogden, \$6000 for the maintenance of the D. O. Mills Expedition from the Lick Observatory to the Southern Hemisphere.

Moffitt, Regent James K., '86, \$1200 for the maintenance of the position of Research Associate in Pathology for the year 1915-16. To this position was called Dr. H. T. Chickering of the Rockefeller Foundation for Medical Research, to work in collaboration with Dr. Frederick Parker Gay, Professor of Pathology, on the perfecting of new methods for the treatment of cases of typhoid by the use of a sensitized vaccine, this new method having already succeeded in aborting about one-third of the typhoid cases in which it has been used.

\$100 as the University of California's contribution toward the expense of the joint exhibit at the Panama-Pacific International Exposition by the libraries of the country.

Moore, Mrs. Frederick Ferdinand (Eleanor Gates, '03), \$600 to maintain a scholarship for 1915-17, this being the equivalent of a Phoebe A. Hearst Scholarship held by Mrs. Moore while she herself was an undergraduate in the University of California. On recommendation of President Wheeler, it was designated the "Eleanor Gates Scholarship."

National Academy of Sciences, a grant of \$500 from the Draper Fund for the construction of an ultra-violet spectrograph for use in connection with the Crossley Reflecting Telescope of the Lick Observatory.

Native Sons of the Golden West, maintenance at the rate of \$3000 per annum of Fellowships in Pacific Coast History.

Phelan, Senator James D., \$100 as a contribution toward a biological survey of the Yosemite Valley by the California Museum of Vertebrate Zoology.

Phillips, Henry B., a number of agricultural works of interest, for the departmental library of the College of Agriculture.

Presbyterian Board of Education, \$383.33 for scholarships.

Prytanean Society of the University of California, \$1075, accepted by the Regents on April 13, 1915, subject to the following conditions, as set forth in the latter portion of a letter of April 12, 1915, signed by Hertha Todd, Sophia McEntyre, and Katherine Carlton: "It is understood that this money will be deposited with the Regents of the University of California for eventual use in providing either for adequate housing facilities for women students, or for any other object of University benefit which may hereafter be decided upon by the Prytanean Society. It is understood that the interest will be added to the principal of this fund annually at a rate to be determined by the Regents. It is understood that the Society reserves the right to determine by vote of its members duly transmitted to the Regents the exact conditions as to the use of the money for any one of the above named objects."

\$50 for use in the University Infirmary.

Reinhardt, Mrs. Aurelia Henry, '98, the medical library of her late husband, Dr. George Frederick Reinhardt, Professor of Hygiene and University Physician in the University of California until 1914, the gift including 306 volumes dealing with particular branches of medicine and with general medical practice. On President Wheeler's recommendation it was voted by the Regents on April 13 that these volumes be placed in the library of the University Infirmary and be known as the George F. Reinhardt Memorial Library.

Rosenthal, Dr. Charles H., a static machine and accessories, for the use of the Department of Physics.

San Diego Chamber of Commerce, \$50 for the Scripps Institution for Biological Research.

San Diego State Normal School, \$50 for the Scripps Institution for Biological Research.

San José High School, \$125 for the maintenance of a scholarship.

Scripps, Miss Ellen B., \$100,000 for further improvements at the Scripps Institution for Biological Research, at La Jolla. The generous intentions of Miss Scripps were communicated to the Regents on April 13,

1915, in the letter hereinafter set forth from her brother, Mr. E. W. Scripps, and the Board voted to approve the procedure proposed therein:

“La Jolla, California, April 11th, 1915.

“To the Board of Regents of the University of California,
“Berkeley, Calif.

“Sirs: Mr. Crandall is appearing before you at my request. It is my sister's intention to spend One Hundred Thousand Dollars (\$100,000) for improvements at the Scripps Institution for Biological Research.

“I request your Board to pass a resolution permitting the Local Board of the Scripps Institution for Biological Research to receive direct from Miss Scripps funds and expend it according to plans agreed upon between the Local Board and your Comptroller.

“My sister being absent from her home at this time and it being necessary for Mr. Crandall to leave before her return, I am acting in her behalf in making the request above. I here personally guarantee, myself, that no labor or material liens would come into existence against the State or the State University.

“Any formal or written obligation on my part that you may prepare covering this ground, I will gladly sign.

“Yours respectfully,

(Signed) “E. W. SCRIPPS.”

On June 8, 1915, it was reported to the Regents that the following notification had been received by the Regents:

“La Jolla, May 8th, 1915.

“To the Regents of the University of California,
“Berkeley, Calif.

“Gentlemen: I am providing for the construction of certain buildings and improvements upon the lands of the Scripps Institution for Biological Research at La Jolla, San Diego County, California, and at my request these buildings and improvements are to be constructed at my instance and under contract with me. As the title to these lands is now vested in you, I agree to pay for all such buildings and improvements, and to indemnify and hold you harmless from all costs and expenses of every character occasioned by the construction of such buildings and improvements.

“Yours truly,

“E. B. SCRIPPS,

“E. W. SCRIPPS.

“Dated: May 10, 1915.”

It was voted to inform Miss Scripps and Mr. Scripps that the offer of a guarantee as set forth above was accepted with the thanks of the Regents.

On August 11, 1914, it was reported that Miss Ellen B. Scripps had agreed to provide an additional gift of \$25,000 for work on a pier, salt-water pumping plant, etc., at the Scripps Institution for Biological Research, this \$25,000 to be added to \$10,000 from the \$60,000 previously guaranteed by Miss Scripps for special purposes of the Scripps Institution. In pursuance of this gift a contract was awarded on August 11, 1914, to the Russell-Green-Foell Company for a concrete pier at a cost of \$28,155, and for work on a pumping plant to the amount of \$2416.

Scripps, Miss Ellen B., \$9000 for maintenance for the Scripps Institution for Biological Research.

Scripps, E. W., \$1500 toward the maintenance of the Scripps Institution for Biological Research.

The State Rivers and Water Supply Commission of Victoria, Australia, £100 for two irrigation engineering scholarships for Australian students.

Strauss and Company, Levi, support of the Levi Strauss Scholarships at the rate of \$3500 per annum.

Stut, Estate of J. C. H., a valuable collection of his scientific books in chemistry, gas engineering, and electrical engineering, these books to be divided between the Departments of Chemistry and Engineering.

Summer Session Faculty of 1915, Members of, \$500 as a contribution to make possible the addition to the Summer Session faculty for 1915 of Professor Adolfo Bonilla y San Martin of the University of Madrid.

Swedish-American Patriotic League of California, an offer of \$125 per annum to maintain, beginning with 1915-16, a scholarship for a Swedish-American student.

Taussig, Regent Rudolph J., \$100 for the Bryce Historical Essay Prize.

Taussig, Trustees for Hugo A., \$335.66 to be used as income of the fund of \$10,000 previously conveyed to the Regents for the Bertha Henicke Taussig Scholarship for women students in the following subjects, preference to be given to the following order: art, architecture, literature. This scholarship may be awarded either to a resident student or as a traveling scholarship.

Thompson, Henry Yates, "Illustrations of One Hundred Manuscripts."

Widener, P. A. B., a sumptuous volume, "Pictures in the Collection of P. A. B. Widener—Early German, Dutch and Flemish Schools."

Young Women's Christian Association of the University of California, \$1000 as an addition to the Y. W. C. A. Endowment Fund.

NOTE.—See also the list of gifts in the Statement of Income for 1914-15.

DEPARTMENTAL LIST

GIFTS TO THE HERBARIUM, BOTANICAL MUSEUM, AND
BOTANICAL GARDEN

TO THE HERBARIUM

- Babcock, Professor E. B., University of California, 2 sheets of exotic shrubs.
- Baker, Miss Helen, Merrill, Oregon, 15 sheets of *Spiraea Millefolium*.
- Brandege, Mr. and Mrs. T. S., University of California, 1691 sheets of phaenogams as follows: 1055 from the Sierra Nevada collected in 1914, 500 from Nevada and southern California collected in 1915, 76 Texan species purchased of H. P. Chandler, 60 miscellaneous specimens. See also under Dr. C. A. Purpus.
- Brandt, Robert P., University of California, 2 sheets of phaenogams.
- Braanton, Ernest, Los Angeles, 1 sheet of *Sphaeralcea* for the horticultural section and fasciated specimen of *Gnaphalium* (sent through Professor W. L. Jepson).
- Bruggemann, C. F., Santa Rosa, 5 sheets of *Lolium subulatum*.
- Clark, Mrs. B. O., Paradise, 35 sheets of *Calochortus Benthamianus*, a rare globe-tulip, for distribution in the University sets.
- Clark, Frank C., '11, Laytonville, 10 sheets of *Phoradendron*.
- Dinsmore, E. B., Indio, 1 sheet *Hyptis Emoryi* from the Colorado Desert.
- Dutton, Harry A., Berkeley, 5 sheets of *Acanthomintha* from San Mateo County.
- Ellis, Mrs. J. E., Los Gatos, 2 sheets of cultivated plants.
- Field Museum of Natural History, Chicago, kindness of Dr. C. F. Millspaugh, 1 photograph of *Solanum aviculare*.
- Gardner, Dr. N. L., University of California, 348 sheets of marine algae.
- Geis, Miss Helen D., Los Angeles, 1 sheet *Micromeria* from Yosemite Valley.
- Grant, Mrs. Adele Lewis, '02, Columbia, 7 sheets of *Hemizonia* and *Madia* from Tuolumne County.

- Greene, Dr. Edward Lee, United States National Museum, Washington, D. C., 16 specimens, mostly portions of types.
- Hall, George R., Santa Ana, 2 sheets of *Ambrosia psilostachya* especially prepared to exhibit rootstocks.
- Hall, Professor and Mrs. H. M., University of California, 993 sheets as follows: 41 plants from the eastern United States, 50 from Colorado, 875 ferns and phaenogams from California, 27 photographs, mostly of type specimens, taken at the Gray Herbarium of Harvard University.
- Hartman, Miss Katharine, Grossmont, 1 sheet *Quercus turbinella*.
- Holman, Dr. R. M., University of California, 5 sheets of *Arundinaria* from Oakland.
- Holzinger, Dr. John M., State Normal School, Winona, Minnesota, 1 specimen of moss from Alaska.
- Hutchison, James H., Nevada City, 1 sheet of cornelian cherry.
- Hyatt, Hon. Edward, Sacramento, 12 sheets of *Cornus sessilis* from Butte County.
- Hyatt, Miss Marguerite, Sacramento, 5 specimens of *Botrychium* and 60 sheets of *Cornus sessilis* from Butte County.
- Jenney, Charles E., Fresno, 1 sheet *Mentha citrata* from Fresno.
- Jepson, Professor W. L., University of California, 40 sheets of *Cotula australis* for distribution in the University sets and 201 sheets from the Volney Rattan herbarium, presented by Miss Georgia Rattan.
- Jones, Miss K. D., University of California, 6 sheets of acacia and 11 other economic plants.
- Kelley, Mrs. Norman D., Berkeley, 1 sheet *Lysimachia nummularia*.
- Kennedy, Professor P. B., University of California, 1 specimen of *Poa palustris* and 7 sheets of water hemlock from Nevada.
- Kidder, Mrs. Anna W., Berkeley, 1 sheet of Philippine lily.
- Kosky, Alfred, St. Helena Sanatorium, 20 sheets of *Cirsium Coulteri*.
- Manning, Mrs. M. H., Fort Bidwell, 12 sheets of phaenogams.
- McCloud River Lumber Company, McCloud, 15 sheets of phaenogams.
- Minthorn, Theodore W., Los Angeles, 31 sheets of phaenogams collected by Miss Mabel Minthorn near Barstow.
- Nutting, Franklin P., '00, Berkeley, an herbarium consisting of 1063 sheets of phaenogams and 405 cryptogams, all collected in California.
- Parish, S. B., San Bernardino, 12 sheets of southern California plants.
- Pendleton, Morris M., Berkeley, 50 sheets of *Cirsium Coulteri* from Los Gatos for distribution in the University sets.

- Perkins, Albert J., Santa Ana, 5 sheets of plants from the Yosemite National Park and 1 sheet of *Raillardella Muirii* from Mt. Woodworth.
- Peterson, Mrs. J. H., Fresno, 2 sheets of rare plants from the Sierra Nevada.
- Purpus, Dr. C. A., University of California, 339 sheets of Mexican plants, determined by T. S. Brandegee.
- Rattan, Miss Georgia, Berkeley. See entry under Professor W. L. Jepson.
- Reed, Fred M., Riverside, 9 sheets of phaenogams from southern California.
- Sanford, J. A., Stockton, 11 sheets of plants from San Joaquin Valley and 9 sheets of phaenogams.
- Smith, Mrs. Inez Ray, Hillsborough, 37 sheets of economic plants.
- Stamper, W. J., University of California, 1 specimen of fasciated rose.
- Tracy, J. P., '03, Eureka, 493 sheets from northwestern California prepared with special reference to the needs of the University herbarium.
- University of California Citrus Experiment Station, Riverside, through H. B. Frost, 136 sheets from southern California.
- Walker, Miss Harriet A., University of California, 82 sheets of economic plants.
- Woodcock, Miss Fidella G., Monterey Peninsula Botanical Society, 1 sheet of phaenogams.

(Total number of specimens received by gift from July 1, 1914, to June 30, 1915, for the herbarium, 6226.)

TO THE BOTANICAL MUSEUM

- Bolster, F. H., Grass Valley, 8 specimens of fungi from Grass Valley.
- Brandegee, T. S., University of California, 1 specimen of fungus from the Mohave Desert.
- Brown, V. S., '15, Berkeley, 5 specimens of fungi.
- Courvoisier, Guthrie, Berkeley, 2 specimens of fungi.
- Decker, Mr., 1 specimen of fungus.
- Gardner, Professor N. L., University of California, 17 specimens of fungi.
- Hall, Professor H. M., University of California, 1 specimen of Polyporus.
- Hauver, J. C., Auburn, 1 specimen of *Lycoperdon sculptum*.
- Hershey, Miss K. B., '04, Berkeley, 4 specimens of fungi.
- Ingram, J. H., Layton, box of roots of yerba mansa.

Jepson, Professor W. L., University of California, 1 bag of bark of *Quercus densiflora*, 1 specimen of Polyporus, 1 trunk and roots of *Arctostaphylos nummularia* from Mt. Tamalpais.

Kennedy, Professor P. B., University of California, 1 specimen of fungus (*Melanoleuca californica*).

Labouchere, Theo., Pasadena, a plant of *Orobanche Cooperi* from the Colorado Desert.

Lee, H. A., '15, Corning, 15 specimens of fungi.

MacIlwaine, M. L., Carrville, 1 Morel.

Noddin, Ralph E., '12, El Portal, 1 specimen of fungus (*Cryptopolyporus volvatus*).

Rudolph, B. A., '14, Berkeley, 3 specimens of fungi.

Setchell, Professor W. A., University of California, 33 specimen of fungi and 1 bottle of liquid material.

Smith, L. S., Berkeley, 44 specimens of fungi from the Lake Tahoe region.

Thomas, W. W., '14, Nevada City, 1 specimen of *Fomes fraxineus*.

Valentien, A. R., San Diego, 1 specimen of *Pinus albicaulis* from the summit of the Sierra Nevada.

Walker, Miss H. A., University of California, 4 specimens of Crepidotes.

Wiester, A. S., '05, 2 specimens candellia (*Pedilanthus*), a wax-plant from Texas.

Yates, Dr. H. S., University of California, 17 specimens of fungi.

(Total number of specimens received by gift from July 1, 1914, to June 30, 1915, for the Botanical Museum, 169.)

TO THE BOTANICAL GARDEN

Brandeggee, Mrs. T. S., University of California, 6 packets of seed of Californian plants and 1 potted plant (*Buddleia variabilis*) from San Diego.

Brown, E. Call, Los Angeles, seeds of plants called "Toronjil" by Mexicans in Lower California.

Hall, Professor H. M., University of California, 23 packets of seed of California plants.

Jensen, Dr. M., Willows, *Stachys ajugoides* roots.

Joss, E. C., Bureau of Animal Industry, U. S. Department of Agriculture, Portland, Oregon, 3 packets of seed of *Phormium tenax* from New Zealand.

- McBride, Samuel, Jenny Lind, 1 packet of seed of *Hemizonia virgata* and 1 of *Madia elegans*.
- Parker, A. C., New York State Museum, Albany, New York, 1 packet tobacco seed of "sacred Indian tobacco."
- Purpus, Dr. C. A., University of California, seeds of *Prunus microphylla* from Mexico.
- Rose, Dr. J. N., Carnegie Institution, Washington, D. C., 4 packets of seed of *Nicotiana* from Santa Clara, Peru.
- Snyder, Irving H., Los Gatos, 2 live plants of prickly shield fern.
- Walker, Miss H. A., University of California, seeds of *Hemizonia citrina* from Tiburon.

(Total number of specimens received by gift from July 1, 1914, to June 30, 1915, for the Botanical Garden, 47. Grand total of donations to the department between these dates, 6442.)

GIFTS TO THE COLLEGE OF CIVIL ENGINEERING

JULY 1, 1914, TO NOVEMBER 1, 1915

- Mr. J. A. L. Waddell, two sets bridge plates, one book on Addresses to Engineering Students, blue prints of bridges.
- Mr. C. A. Schweissinger, blue prints of Los Angeles building.
- Mr. C. H. Snyder, contract and shop plans, Horticultural Palace, Panama-Pacific International Exposition.
- Professor B. A. Etcheverry, blue prints of irrigation design.
- Mr. H. B. Foster, blue print plans of La Jolla pier.
- U. S. Steel Products Company, large photographs of the City Hall and Civic Auditorium, San Francisco.
- Milliken Bros. (Mr. E. H. Frisell), blue print plans of buildings and other structures.
- Santa Cruz Portland Cement Company, one large framed picture of their Davenport Cement Plant; cement for tests.
- Mr. J. H. G. Wolf, engineering periodicals.
- California Brick Company, brick for tests.
- Professor F. S. Foote, Jr., engineering periodicals.
- Pacific Coast Steel Company (Mr. J. B. Leonard), corrugated bars for tests.

GIFTS TO THE DEPARTMENT OF ZOOLOGY

FOR THE ACADEMIC YEAR 1914-15

- Allen, W. E., Stockton, California; collection of 95 vials fresh-water plankton from the San Joaquin River.
- Baxter, G. E., Marshall, California; 1 specimen of Gordian worm.
- Camp, C. L., '15, Berkeley, California; nematodes from gopher snake.
- Cogliandro, A., San Francisco California; 2 deep-sea crabs.
- Cowan, Dr. A. B., Fresno, California; 1 embryo.
- Crowell, Professor B. C., Manila Medical School, Manila, P. I.; preparation of amebic ulcerations.
- Davelney, A., Groveland, California; myriapods and insect larvae.
- Drew, Dr. A. D., Alameda, California; 2 bottles of hookworm.
- Élliott, S. A., San Francisco, California; 1 bottle of damsel fly larvae.
- Ingersol, Mr., by Mr. E. C. Johnston, U. S. S. Albatross, Sausalito, California; 1 specimen of the sunfish, *Mola mola*.
- Jewett, Dr. J. A., '13, Berkeley, California; 1 Taenia.
- McDonald, J. D., Berkeley, California; collection of 7 bottles of parasites from vertebrates.
- Oldroyd, Mrs. Ida P., Long Beach, California; named specimens of 9 species of boring mullusks.
- Oliver, J. N., Hollywood, California, 2 abalones with artificial blister pearls; collection of 59 abalone shells and abnormal abalone blister pearls.
- Potter, Mr., of Hawaiian Aquarium, Hawaiian Building, Panama-Pacific International Exposition; 95 Hawaiian fish, 5 *Octopus*, 1 *Palinurus*, from Honolulu Aquarium.
- Pray, Mrs. Berkeley, California; collection of 1626 shells from La Paz, Mexico, and 2 *Tridacua* from the Philippine Islands.
- Riggs, Professor G. B., Seattle, Washington; 2 bottles marine plankton from Fox Bay, Alaska.
- Roberts, J. E., Moss Beach, California; collection of 60 specimens of marine invertebrates.
- Shepherd, F. J., Lompoc, California; specimen of Gordian worms.
- Spring Valley Water Company, San Francisco, California, by G. A. Elliott, superintendent, 156 jars fresh-water plankton.
- Swezy, Dr. Olive, '13, Berkeley, California; collection of 1000 prepared microscopic slides of the intestinal flagellates of vertebrates.
- United States Bureau of Forestry, San Francisco, California; 23 specimens of wooden piling attacked by marine borers.

GIFTS TO THE CALIFORNIA MUSEUM OF VERTEBRATE ZOOLOGY

July 1, 1914, to June 30, 1915

NOTE.—This list does not include specimens secured by collectors regularly employed from the fund provided by Miss Annie M. Alexander and other patrons for maintenance of the Museum, nor does it include a number of accessions received by purchase out of the same fund.

The term "mammal" as here used ordinarily means a dry study-skin plus the cleaned skull belonging to the same individual, not infrequently a complete skeleton, and sometimes the entire animal preserved in alcohol. A "bird" is usually a dry study-skin, sometimes a partial or complete skeleton. A "set of eggs" is the total number of eggs found in a single bird's nest, often accompanied by the nest itself. A "reptile" or "amphibian" is the entire animal preserved in alcohol.

Alexander, Miss Annie M., one river otter (*Lutra canadensis brevipilosus*), from Montezuma Slough, Solano County, California.

Alexander, Miss Annie M., and Kellogg, Miss Louise, 7 birds (*Oreortyx* and *Empidonax*) and 1 amphibian, from Siskiyou County, California.

Allen, Mrs. A. S., one golden pileolated warbler (*Wilsonia p. chryseola*), from Berkeley; nest and four deserted young of same.

Alpha Tau Omega Fraternity, one Japanese bear.

Ames, J. B., one green heron (*Butorides*), from Oakdale, California.

Australian Commissioner, Panama-Pacific Exposition, 2 foreign birds.

Bailey, H. H., 4 mammals (marsh rabbits and chipmunks), from Virginia.

Billings, Dr. W. M., 2 foreign birds.

Bolander, L. P., Jr., one duck (*Mergus americanus*), from Meridian, California; 2 birds (*Phalaropus* and *Rallus*), from Tomales Bay.

Borell, Eldon and Raleigh, 16 bats (*Nycteris b. teliotis*), from Fresno.

Bingmann, A., 5 foreign birds.

Bryant, Dr. H. C., 1 mole (*Scapanus latimanus*), from Berkeley Hills; 2 birds (*Erismatura* and *Lobipes*), from Merced County; nest and eggs of sora rail (*Porzana carolina*), from near Alvarado.

Bryant, Dr. H. C., and Dirks, W. N., 2 young ducks (*Marila americana* and *Spatula clypheata*), from near Alvarado, California.

Camp, Chas. L., 1 lizard (*Eumeces*), from Kern County, California; 3 amphibians and 1 reptile, from California.

- Clarke, Frank C., 2 deer (*Odocoileus columbianus*), from Laytonville, Mendocino County, California.
- Crane, Miss Ethel, 1 alligator lizard (*Gerrhonotus burnetti*), from Berkeley.
- Dice, Lee R., 11 mice (*Mus musculus*), from Santa Clara and San Luis Obispo counties, California; 24 birds, 8 mammals, 6 separate skulls of mammals, 6 amphibians, and 9 reptiles, from Walla Walla and Columbia counties, Washington, and from Palo Alto, California; 1 skin and skull of rare rodent (*Microtus xanthognathus*), from McGrath, western Alaska; 2 birds, from Berkeley.
- Dirks, W. N., 23 young ducks and rails, from marshes near Alvarado, Hayward, and Los Banos; young ring-necked pheasant (*Phasianus torquatus*), from State Game Farm, at Hayward; hybrid pheasant-fowl, albino black-headed grosbeak, and blackbird, from State Game Farm, at Hayward; 1 weasel (*Mustela xanthogenys*), from Hayward.
- Dowell, Overton, 2 black gophers (*Thomomys niger*), from Mercer, Oregon.
- Dumser, Mrs. J. S., 1 quail (*Lophortyx c. californica*), from Oakland.
- Erskine, W. J., 52 bird skins, from Kodiak, Alaska.
- Fish and Game Commission, 2 pairs of antlers of black-tailed deer (*Odocoileus columbianus*), from State Game Farm, at Hayward.
- Fleming, Miss Jennie G., 1 toad (*Bufo cognatus*), from Albuquerque, New Mexico.
- Freeman, E. D., 1 snow-shoe rabbit (*Lepus washingtoni klamathensis*), from Placer County, California.
- Fries, E., 1 snake (*Diadophis amabilis*), from Berkeley.
- Gilman, M. French, 3 birds' nests and 4 birds, from Sacaton, Arizona; nest and eggs of hooded oriole with eggs of bronzed cowbird; nest and eggs of plumbeous gnatcatcher with eggs of dwarf cowbird, from near Sacaton, Arizona.
- Guiberson, N. G., skull of coyote (*Canis ochropus*), from Sierra Nevada.
- Guintyllo, J., 1 mole (*Scapanus latimanus*), from near Walnut Creek, California.
- Hall, Chas. L., 33 birds, from Eldorado and Sacramento counties, California.
- Hanna, W. C., 2 lizards (*Coleonyx variegatus* and *Gerrhonotus scincicauda*), from Colton, California; 1 bat (*Corynorhinus macrotis pallescens*), from Whitewater, California.
- Haring, Dr. C. M., 1 mole (*Scapanus latimanus*), from Berkeley.
- Haring, Mrs. C. M., 1 barn owl (*Tyto pratincola*), from Piedmont.
- Heger, R. H., 13 foreign birds, including Cape Barren goose, maccaw, parrots, etc., from Asia and Australia.

- Ienshaw, Judge F. W., skull of fisher (*Mustela pennanti pacifica*), from Eden Valley, Mendocino County, California.
- Jerring, F. D., 17 gophers (*Thomomys bottae*), from near Los Gatos, California.
- Jowell, A. B., 2 skins and 2 skulls of *Aplodontia*, from near Mammoth, Mono County, California.
- Jubbard, Samuel, Jr., 33 bird skins, collected by early naturalists, from Guatemala to Labrador; 1 wood duck (*Aix sponsa*), secured in 1882 near Oakland.
- Huey, Laurence M., 2 petrels (*Occanodroma socorroensis*), from Los Coronados Islands, Mexico.
- Hunter, J. S., 2 ducks (*Marila americana*), from Los Banos, California.
- Jordan, Taylor, 1 mole (*Scapanus latimanus*), body skeleton of wildcat (*Lynx californicus*), skeleton and skull of coyote (*Canis oebropus*), and 2 body skeletons of same, all from Berkeley Hills.
- Kellogg, Miss Louise, 1 yellow rail and 1 black rail, from Suisun Marsh, Solano County, California.
- Kew, W. S. W., 1 mole (*Scapanus latimanus*), from Berkeley.
- Larsell, Olof, 1 salamander (*Diemyctylus torosus*), from McMinnville, Oregon; 2 other amphibians, from Oregon.
- Legge, Dr. Robert T., skull of black bear (*Ursus americanus*), from near McCloud, California.
- Light, J. E., 1 blue-fronted jay (*Cyanocitta*), from Alameda County, California.
- Merrill, Grant P., and Metson, W. H., 1 white-tailed jackrabbit (*Lepus campestris sierrae*), from Woodfords, Alpine County, California.
- Miller, Severin, 1 skull of porpoise (*Phocaena*), from San Francisco.
- Moane, S. S., 1 foreign parrot (*Calopsittacus novae-hollandiae*).
- Muzzall, A. H., 1 shrew-mole (*Neurotrichus gibbsii hyacinthinus*), from Marin County, California.
- Neale, George, 1 wood duck (*Aix sponsa*), from Sacramento.
- Newberry, Walter C., 1 bat (*Nycteris cinerea*), from Berkeley Hills.
- Noble, W. H., 1 salamander (*Ambystoma tigrinum*), from Galt, Sacramento County, California.
- Payne, E. D., horns and portion of cranium of bighorn (*Ovis canadensis sierrae*), from Warner Mountains, Modoc County, California.
- Peck, George D., 1 "hybrid" flicker (*Colaptes c. saturator*), from Salem, Oregon.

- Pitchford, W., 2 eggs of crested bustard, 1 egg of secretary bird, from German East Africa.
- Pleth, Dr. V., 1 nest of bush-tit, from Tuolumne County, California.
- Pond, Lieutenant John E., cranium of whale, from Espiritu Santo Island, Lower California.
- Rice, Arthur, 1 albino English sparrow, from Berkeley.
- Richardson, Edward, 1 amphibian (*Hyla regilla*), from Oakland.
- Ricketts, E. D., 1 wood duck (*Aix sponsa*), from Live Oak, Sutter County, California.
- Robison, A. C., 7 foreign birds, from Australia and Asia.
- Rowley, John, 3 skulls of California sea lion (*Zalophus californianus*), from Santa Cruz Island; 2 sooty grouse (*Dendragapus o. fuliginosus*), from Gazelle, Siskiyou County; 8 gophers (*Thomomys bottae*), from near Los Gatos, California.
- Royar, M. L., and Coale, H. O., 1 garter snake (*Thamnophis*), from Berkeley Hills.
- Skaale, A. J., 1 hawk (*Accipiter cooperi*), from Contra Costa County, California.
- Smith, Franklin J., 1 screech owl (*Otus a. bendirei*), from Eureka, California.
- Stone, George E., 1 mole (*Scapanus latimanus*), from Berkeley.
- Sumner, Dr. F. B., 4 shrews (*Sorex*), 1 shrew-mole (*Neurotrichus*), from Eureka, California; 56 mice (*Peromyscus*, *Perognathus*, and *Mus*), from La Jolla, California; 21 mice, chiefly *Onychomys*, from Victorville, California.
- Thomas, Vernon D., 1 deer (*Odocoileus c. columbianus*), from Marin County, California.
- Townsley, F. S., body skeleton and skull of wildcat (*Lynx californicus*), from Yosemite Valley, California.
- Wear, Miss Winifred N., 2 bats (*Nycteris*), from Fresno.
- Wiley, Leo, 1 lizard (*Coleonyx variegatus*), from Palo Verde, Imperial County, California.
- Willett, George, 2 song sparrows (*Melospiza m. rufina*), from Forrester Island, Alaska.
- Woodworth, Chas., 1 rattlesnake (*Crotalus*), from Berkeley Hills.
- Yomomato, S., 1 bird from Japan.

LECTURES AND ADDRESSES

SUMMER SESSION, 1914

ANTHROPOLOGY LECTURES

(Delivered on Sunday afternoons at the Museum of Anthropology, Affiliated Colleges, San Francisco.)

E. W. Gifford, Assistant Curator of the University Museum of Anthropology:

June 21—The World's Great Monuments.

July 4—Races of the World.

July 26—Who Were the Egyptians?

T. T. Waterman, Assistant Professor of Anthropology:

June 28—Racial Background of the Mexican Troubles.

Dr. F. A. Barrett, of the Milwaukee Public Museum:

July 12—The Cayatu Indians of Equador (illustrated).

July 19—Recent Mexican Revolutions: Their Causes and Remedies.

COMMUNITY PROBLEMS SERIES

F. G. Athearn (first organizer of the Employees' Clubs of the Southern Pacific Company):

July 9—Self-expression and Citizenship.

Orrin C. Baker, General Secretary of the Travelers' Aid Society of New York:

July 23—Our Responsibility for the Protection of Travelers.

Mary I. Bentley, Field Student of the Y. W. C. A. for the Pacific Coast:

July 2—Asimolar.

Dr. Adelaide Brown, of San Francisco:

June 29—Standard of Control for a Milk Supply.

B. M. Cherrington, Student Secretary of the Y. M. C. A., University of California:

July 21—The Work of the Young Men's Christian Association Throughout the World.

Miss Katherine Felton, Secretary of the Associated Charities of San Francisco:

July 16—What California is Doing for Neglected Children (illustrated).

Will J. French, Commissioner of the Industrial Accident Board of California:

July 6—Industrial Accidents and Their Prevention.

Dr. H. H. Johnson:

July 14—Foreign Problems Confronting California.

O. J. Kern, Assistant Professor of Agricultural Education:

July 7—Women in Country Life Education.

Rev. Albert W. Palmer, Plymouth Center, Oakland:

June 25—English Garden Cities.

Miss Lillie M. Sherman, Student Secretary of the Y. W. C. A., University of California:

July 21—The Work of the Young Women's Christian Association Throughout the World.

LECTURES ON HEREDITY AND SOCIAL HYGIENE

Vernon L. Kellogg, Professor of Entomology, Stanford University:

June 22—Variation, Inheritance, and Selection.

June 29—The Teaching of Eugenic Ideals.

July 6—The Old Heredity and the New—Galton and Mendel.

July 13—Human Inheritance.

July 22—Heredity and Education.

July 29—Eugenics and Militarism.

Dr. W. F. Snow, Secretary of the American Social Hygiene Association:

June 24—Social Hygiene.

July 1—The American Social Hygiene Association.

July 8—The Family, Environment, and Occupation.

July 15—The Marriage Contract.

July 20—The Reduction of Venereal Diseases.

July 27—The Reduction of "Social Evil."

PHILOSOPHY LECTURES

Josiah Royce, Alford Professor of the History of Philosophy, Harvard University:

July 20—Illustrations of the Philosophy of Loyalty.

July 22—The Art of Loyalty.

July 24—The Insurance Theory of Induction.

July 27—The Triadic Theory of Knowledge.

July 29—Induction and the Community.

July 31—The World and its Interpreters.

SUMMER SESSION FORUM

Dr. Everett C. Beach, Director of Physical Education in the Los Angeles Elementary Schools:

July 30—The Play Leader.

Edward B. DeGroot, Secretary of the Chicago Playground and Recreation League:

July 14—The Necessity for Public Recreation.

John M. Eshelman, '02, President of the California State Railroad Commission:

July 23—Resolved, That Public Municipal Utilities Should be Under the Control of the Railroad Commission.

John H. Gray, Professor of Economics and Politics, University of Minnesota:

July 28—Our Immigration Question.

Carl Kelsey, Professor of Sociology in the University of Pennsylvania:

July 16—Are the Immigrants of Today Equal to Those of an Earlier Day?

Dr. Carleton H. Parker, Assistant Professor of Industrial Economy and Secretary of the State Immigration and Housing Commission:

July 2—Will the Danger of Unemployment Come to California this Winter?

Thomas H. Reed, Associate Professor of Government:

July 6—The Laborer and the Law. (With special reference to the trouble in Colorado.)

Merle Thorpe, Professor of Journalism in Kansas University:

July 8—Can a Newspaper Tell the Truth?

MISCELLANEOUS LECTURES

Irving Babbitt, Professor of French Literature in Harvard University:

July 14—The Terms, Classic and Romantic.

July 17—Poe's Influence in France.

Dr. Ford A. Carpenter, Local Forecaster of the United States Weather Bureau, Los Angeles:

July 1—Recent Work in Upper Air Research.

July 3—Frost Studies in California.

John C. Rolfe, Professor of the Latin Language and Literature in the University of Pennsylvania:

July 16—Ostia, the Ancient Seaport of Rome and the Recent Excavations.

ACADEMIC YEAR, 1914-15

LECTURES ON ADVERTISING

- Frank H. Abbott, Jr., of the F. H. Abbott Company, San Francisco:
 April 8—Color and Type.
- J. L. Adler, Advertising Manager of the San Francisco *Bulletin*:
 February 4—Newspaper Advertising.
- W. L. Cook, Advertising Manager for S. N. Wood & Co.:
 March 4—The Advertising of Men's Clothing.
- F. H. Drake, of the Cooper Advertising Company:
 March 18—The Advertising of Real Estate.
- George H. Eberhard, President of the George F. Eberhard Company, San Francisco:
 March 11—Advertising a Trade-marked Product. Medium. Campaign. Introducing a New Product. Displacing an Unnamed Product. Displacing a Named Competitor. Increasing the Demand. The Package. The Sales Plan.
- E. C. Fisher, of the *Sunset Magazine*:
 February 11—National Magazine Advertising.
- Louis Honig, of the Honig Advertising Company, San Francisco:
 April 15—The Qualifications of an Advertising Man.
- Samuel P. Johnston, of the Johnston-Ayres Company, San Francisco:
 April 1—Advertising Agencies.
- Russell Lowry, of the Federal Reserve Bank, San Francisco:
 March 25—Financial Advertising.
- C. S. Richardson, Editor of *Practical Advertising*:
 February 18—The Value and Efficiency of Circulars, Booklets and Other Kinds of "Follow-up" Literature.

ANTHROPOLOGY LECTURES

(Delivered on Sunday afternoons at the Museum of Anthropology Affiliated Colleges, San Francisco.)

- E. W. Gifford, Assistant Curator of the University Museum of Anthropology:
- August 2—The Pyramids.
- August 16—Life in Ancient Egypt.
- August 23—An Egyptian Funeral.
- August 30—Cleopatra.
- September 6—The War from a Standpoint of Race and Speech.
- September 7—A Monument to Labor—the Pyramids of Egypt.
- September 9—The Original Native Sons: the Indians of California.
- September 13—African Explorers.
- September 20—A Graft Case 3000 Years Ago.

- September 27—The French Nation: Its Composition.
 October 4—Nationalities in the European Situation.
 November 8—The Pacific Islanders.
 November 15—The Racial Composition of Great Britain.
 November 22—The Racial Composition of Germany.
 November 29—The Racial Composition of Austria.
 December 6—The Racial Composition of Russia.
 December 13—The Racial Composition of France.
 January 17—The Prehistoric Californians.
 January 24—The Indians of Northwestern California.
 January 31—The Indians of Central California.
 February 6—The Indians of Southern California.
 March 14—Modesty and Display.
 March 21—How We Dress and Why.
 March 28—Religion in California before the Padres: the Creation of the World.
 May 2—The Egyptian Pantheon.
 May 9—The Significance of the Pyramids.
 C. A. Kofoid, Professor of Zoology:
 March 7—A Visit to Easter Island, with an Account of Its Antiquities.
 A. L. Kroeber, Associate Professor of Anthropology and Curator of the Anthropological Museum:
 October 11—The Race Factor.
 October 18—Militarism and its Antecedents.
 October 25—The European War.
 April 4—In the Footsteps of Abraham.
 April 11—What is the Matter with Eugenies?
 M. Washburn, Assistant Professor of Classical Archaeology:
 April 18—Greek Seas and Mountains.

ARCHAEOLOGY LECTURES (ILLUSTRATED)

- M. Washburn, Assistant Professor of Classical Archaeology:
 August 25—Mother Earth.
 September 1—Father of Gods and Men.
 September 8—The Earth Shaker.
 September 22—The God of the Unseen.
 September 29—Apollo.
 October 6—Dionysius.
 October 13—Pan.
 October 20—Athens.
 October 27—Hermes.
 November 17—Hercules.

November 24—Theseus.

December 1—Aphrodite.

January 12—Troy.

January 19—Thera.

January 26—Ephesus.

February 2—Miletus.

February 9—Priene.

February 16—Priene II.

March 2—Delphi.

March 9—Olympia.

March 16—Epidaurus.

March 30—Syracuse.

April 6—Herculaneum.

Professor Edward W. Clark, of Rome, Italy:

April 28—Egypt.

FORESTRY CLUB LECTURES

J. N. Bedford, Forester, U. S. Indian Service, Klamath Agency, Oregon:

March 3—Forestry on the Klamath Indian Reservation.

Neal T. Childs, Consulting Forester, Oakland, California:

November 8—Opportunities in the Profession of Forestry.

Don Carlos Ellis, Washington, D. C.:

March 17—Some Popular Aspects of Forestry.

Arthur T. Fischer, Forester, Bureau of Forestry, Manila, P. I.:

February 3—Forest Conditions in the Philippine Islands.

G. Morris Homans, State Forester of California:

February 17—Forest Taxation.

LICK OBSERVATORY LECTURES

R. G. Aitken, Astronomer at the Lick Observatory:

March 31—Star Clusters (illustrated).

W. W. Campbell, Director of the Lick Observatory:

March 15, 16, 18, 19—The Evolution of the Stars and the Formation of the Earth.

PHILOSOPHICAL UNION LECTURES

David P. Barrows, Dean of the Faculties and Professor of Political Science:

February 26—Politics and the Old Adam.

H. C. Brown, Assistant Professor of Philosophy, Stanford University:

March 25—Politics and Human Nature.

J. W. Buckham, of the Pacific Theological Seminary:

January 29—The Person and the Community.

Horace M. Kallen, of the University of Wisconsin:

January 28—Pragmatism and the Hebraic View.

C. I. Lewis, Assistant Professor of Philosophy:

November 20—Competition and Civilization.

Josiah Royce, Alford Professor of Philosophy in Harvard University:

August 27—The Spirit of the Community.

PHILOSOPHY LECTURES ON IDEALISM AND RELIGION

C. I. Lewis, Assistant Professor of Philosophy:

January 15—Naturalism, Idealism, and Religion.

January 22—Kant and the Problem of Faith.

February 5—Fichte's Conception of God.

February 12—Fichte's Conception of the Self.

February 19—The Self and the Eternal Order.

March 5—The Question of Immortality.

March 12—The German Revolt from Idealism.

March 19—The Rationalization of Religious Views.

PHYSICS DEPARTMENT LECTURES

E. E. Hall, Associate Professor of Physics:

April 7—Vibrations in Buildings.

E. P. Lewis, Professor of Physics:

September 11—X-Rays and Atomic Theories.

March 5—The Effect of an Electric Field on Radiation.

April 21—The Spectroscope and its Uses in Astrophysics.

R. S. Minor, Associate Professor of Physics:

March 17—Gravitation.

March 19—The Absorption of Ultra-Violet Radiation by Optical Glasses and the Tissues of the Eyes.

W. J. Raymond, Associate Professor of Physics:

January 22—An Experimental Method for the Analysis of Alternating Current Waves.

April 14—Electric Waves.

W. P. Roop, Instructor in Physics:

March 31—States of Matter.

Frederick Slate, Professor of Physics:

March 24—Our Unsteady Earth and the Tides in It.

PUBLIC UTILITY FINANCE LECTURES

Paul A. Sinsheimer, Bond Expert of the State Railroad Commission:

August 18—Opening lecture.

August 25—Public Utility Commissions—City, State, and National: Their Status, Organization, and Methods.

September 15—Valuation and the Rate of Return.

September 22—Rates and Service.

October 20—Standard Tests of Stocks and Bonds; Tests to Determine which are "Good" Bonds, and What is Meant by "Good".

October 27—Standard Tests of Stocks and Bonds; Tests to Determine which are "Good" Bonds, and What is Meant by "Good".

November 10—Public Utility Mortgages and Franchises.

November 17—Public Utility Mortgages and Franchises.

SATHER LECTURES ON CLASSICAL LITERATURE

Henry W. Prescott, Sather Professor of Classical Literature:

January 19—Vergil's *Aeneid*: The Social and Political Environment.

January 21—Vergil's *Aeneid*: The Poet.

January 26—The Legend of Aeneas.

January 28—Epic Tradition: The *Iliad* of Homer.

February 2—Epic Tradition: The *Odyssey* of Homer.

February 4—Epic Tradition: The Argonauts of Apollonius of Rhodes and Later Greek and Roman Epics.

February 9—Vergil's *Aeneid*: The Story of Dido.

February 11—Vergil's *Aeneid*: The Story of Dido.

February 16—Vergil's *Aeneid*: The Story of Dido.

February 18—Vergil's *Aeneid*: The Fall of Troy.

February 23—Vergil's *Aeneid*: The Fall of Troy.

February 25—The Wanderings of Aeneas.

March 2—Vergil's *Aeneid*: The Funeral Games.

March 4—Vergil's *Aeneid*: The Preparations for the Descent to Hades.

March 9—Vergil's *Aeneid*: The Descent to Hades.

March 11—Vergil's *Aeneid*: The Descent to Hades (continued).

March 16—The Life After Death in Popular Fancy and in Philosophical Theory.

March 18—Vergil's *Aeneid*: The General Plan of the War in Latium.

March 30—The Battles of the War in Latium.

April 1—The Characters of the *Aeneid*.

LECTURES ON THE SOCIAL ASPECTS OF THE LIQUOR PROBLEM

G. H. DeKay, realty dealer, Berkeley:

March 15—The Relation of Liquor to Business.

J. A. B. Fry, of San Francisco:

March 29—Ethical Aspects of the Liquor Problem.

R. L. Green, Professor of Mathematics in Stanford University:

April 19—Legislative Methods of Dealing with the Liquor Problem.

- W. B. Herms, Assistant Professor of Parasitology:
 April 5—European Methods of Dealing with the Liquor Problem.
- S. J. Holmes, Professor of Zoology:
 February 2—Alcohol and Heredity.
- Walter MacArthur, United States Commissioner of Shipping, San Francisco:
 March 22—The Relation of Liquor to Labor.
- Leon Martin, '02, attorney at law, San Francisco:
 March 8—Liquor Revenue as a Source of Public Income.
- R. O. Moody, Associate Professor of Anatomy:
 January 25—Physiological Effects of Alcohol.
- Jessica B. Peixotto, Assistant Professor of Social Economics:
 February 15—The Relation of Liquor to Poverty and Crime.
- T. H. Reed, Associate Professor of Government:
 March 1—Relation of Liquor to Politics.
- C. E. Rugh, Professor of Education:
 April 12—The Relation of Education to the Liquor Problem.

UNIVERSITY EXTENSION LECTURES

- David P. Barrows, Professor of Political Science and Dean of the Faculties:
 August 21—The European Alliances and Their Effect upon the Present Military Situation.
 November 30—The Responsibility of the United States as a Great Power.
- H. E. Bolton, Professor of American History:
 December 7—The Spanish Mission System in the Southwest.
- H. E. Cory, Assistant Professor of English:
 March 8—The Spirit of English Literature.
 March 15—The Spirit of English Literature.
- Ira B. Cross, Assistant Professor of Economics on the Flood Foundation:
 August 25—War and the Working Classes.
- N. B. Drury, Instructor in Oral English:
 February 22—Robert Louis Stevenson.
- W. M. Hart, Associate Professor of English Philology:
 February 1—Kipling, the Story Writer.
- R. S. Holway, Associate Professor of Physical Geography:
 December 21—Mt. Lassen, California's Active Volcano.
- I. W. Howerth, Professor of Education and Director of University Extension:
 August 28—War and Civilization.
- C. A. Kofoed, Professor of Zoology:
 September 4—The Probable Effects of the European War upon the Human Stock.

George R. MacMinn, Instructor in English:

February 15—Maurice Maeterlinck.

G. R. Noyes, Associate Professor of Slavic Languages:

February 8—Tolstoi.

Clifton Price, Assistant Professor of Latin:

March 22—Horace, His Life and Philosophy.

Dr. Aurelia H. Reinhardt, Instructor in English in the University Extension Division:

March 1—Bernard Shaw.

C. E. Rugb, Professor of Education:

December 14—The Education of Helen Keller.

George A. Smithson, Instructor in English Philology:

January 25—Plays of Our Forefathers.

G. M. Stratton, Professor of Psychology:

September 8—Psychology and the War Spirit.

C. W. Wells, Associate Professor of English:

January 11—Journalism and Literature.

Benjamin I. Wheeler, President of the University:

September 1—The Main Factors in the Outbreak of the War.

ZOOLOGY LECTURES

H. C. Bryant, Assistant Curator of Birds, California Museum of Vertebrate Zoology:

March 15—Frogs, Toads, and Salamanders of California.

Joseph Grinnell, Assistant Professor of Zoology, and Director of the California Museum of Vertebrate Zoology:

January 25—Identification of Birds from Behavior and Songs.

February 1—Water Birds on San Francisco Bay.

February 8—Some Mammals of California and Their Economic Relations.

February 16—The Spring Migration of Birds.

March 1—Nesting Habits of Our Native Birds.

S. J. Holmes, Associate Professor of Zoology:

March 29—The Crabs, Lobsters and Other Crustaceans of California.

April 12—The Life of a Barnacle.

W. P. Taylor, Curator of Mammals in the California Museum of Vertebrate Zoology:

March 8—Conservation of Game in California.

MISCELLANEOUS LECTURES

Geheimrat Regierungsrat Dr. Otto Appel, of the Kaiserliche Biologische Anstalt at Dahlem, Berlin:

September 30—The Fundamentals of the Science of Phytopathology

October 1—Breeding Diseases—Resistant Plants.

William D. Armes, Associate Professor of American Literature; Chairman of the Musical and Dramatic Committee:

April 19—Roman North Africa (illustrated).

Professor E. E. Barnard, of the Yerkes Observatory:

March 2—Some Peculiarities of Comets and Their Tails (illustrated).

March 3—Some of the Visible Results of Astronomical Photography.

J. S. Burd, Professor of Agricultural Chemistry:

December 2—The Economic Value of Pacific Coast Kelp.

Professor Albert T. Clay, Yale University:

September 16—Recent Discoveries in Babylonia and Assyria.

Dr. Stanton Coit, of London, President of the West London Ethical Society:

April 7—Is Civilization a Disease? (Annual Weinstock Lecture).

C. H. Cunningham, Assistant in History:

October 29—The Philippine Islands.

Dr. H. D. Curtis, Astronomer at the Lick Observatory:

November 30—An Eclipse Camp in War Time: The Crocker Expedition to Observe the Total Solar Eclipse of August 28, in Brovary, Russia.

Dr. Barton W. Evermann:

February 24—Conservation of California Elk.

William L. Finley, '03, State Game Warden of Oregon, President of the Oregon Audubon Society, and Lecturer for the National Association of Audubon Societies:

November 20—Our Children and the Birds (illustrated with moving pictures).

Robert W. Gleason, of Boston, member of the Appalachian Mountain Club, Mazama Club, and Sierra Club:

October 9—Alaska, Its Scenery and Inhabitants.

Mrs. Julia W. Henshaw, F.R.G.S.:

March 29—The Mountain Flora of Vancouver Island (illustrated).

Frederick L. Hoffman, Statistician of the Prudential Insurance Company and President of the American Statistical Association:

February 18—The Place of Insurance in Universal History.

Jenkin Lloyd Jones, LL.D., Head Resident of Abraham Lincoln Center, Chicago:

March 15—Above All Nations is Humanity.

David Starr Jordan, Chancellor of Stanford University:

May 10—Internationalism and the Scholar (Annual Phi Beta Kappa Address)

Dr. A. O. Leuschner, Professor of Astronomy and Dean of the Graduate School:

March 23—Recent Progress in the Study of Motions of Bodies in the Solar System (Faculty Research Lecture).

Dr. William Palmer Lucas, Professor of Pediatrics in the University of California Medical School:

March 3—The Profession of the Trained Nurse.

Robert Newton Lynch, of the California Development Board:

October 27—Some Connections between Commerce and Agriculture.

Ng Poon Chew, Editor of the *Chung Sai Yat Po*, San Francisco:

October 5—The Conditions in China.

Professor W. A. Orton, Vice-Chairman of the Federal Horticultural Board and Pathologist of the United States Bureau of Plant Industry:

October 1—The Methods and Problems of Federal Plant Quarantines.

A. U. Pope, Assistant Professor of Philosophy:

November 5 and 10—Form and Expression in Oriental Rugs.

Dr. William Popper, Assistant Professor of Semitic Languages:

November 30—Jewish Education.

H. C. Vesano, '03, Chief Engineer of the Pacific Gas and Electric Company:

October 28—The Lake Spaulding Dam.

L. D. Voyer, Illuminating Engineer of the General Electric Company:

October 14—Manufacture of Incandescent Lamps.

Thomas A. Watson, of San Francisco:

February 3—The Birth and Babyhood of the Telephone.

John Z. White, National Lecturer of the Henry George Association:

November 2—The Single Tax.

Walter O. Woehlke, Contributing Editor of the *Sunset Magazine*:

October 12—The Asiatic Question in America.

DEATHS OF MEMBERS OF THE UNIVERSITY

Dohrmann, Frederick William, a Regent of the University, August 18, 1914.

Christy, Samuel Benedict, Professor of Mining, November 30, 1914.

Claypole, Edith J., Research Assistant in Pathology, March 26, 1915.

Grauel, Emil F., Orchard Foreman at the University Farm, April 1, 1915.

Hoffman, John Herman, a Sophomore in the College of Commerce, October 22, 1914.

Little, Eleanor, a Freshman in the College of Natural Sciences, March 31, 1915.

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PUBLISHED WRITINGS OF OFFICERS OF THE UNIVERSITY

(July 1, 1914, to June 30, 1915)

ABBOTT, R. B., Instructor in Physics.

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The Audion and a Magnetic Field. *Popular Electricity and Modern Mechanics*, vol. 29, no. 4, p. 447; October, 1914.

ADAMS, C. E., Martin Kellogg Fellow in the Lick Observatory.

The Longitude, Latitude, and Height of the Hector Observatory, Wellington, New Zealand. *Transactions of the New Zealand Institute*, Wellington, N. Z., vol. 67, p. 590. Government Printing Office, and William Wesley & Son, 28 Sussex Street, Strand, London, England; July, 1915.

Tables, Astronomical:

1. New Zealand Civil Mean Time of Sun on Meridian of Hector Observatory, Wellington, New Zealand. *New Zealand Gazette*; December 10, 1914.
2. Time Corrections for Any Other Meridian in New Zealand. *Ibid.*, December 10, 1914.
3. Time Corrections for Selected Positions in New Zealand. *Ibid.*, December 10, 1914.
4. Times of Sunrise and Sunset for Positions in New Zealand. *Ibid.*, December 10, 1914.
5. For Converting Local Sidereal Time at the Hector Observatory into New Zealand Civil Mean Time. *Ibid.*, January 14, 1915.
6. Corrections for Other Longitudes in New Zealand. *Ibid.*, January 14, 1915.

ADAMS, G. P. Assistant Professor of Philosophy.

The Interpretation of the Nineteenth Century. *The University of California Chronicle*, vol. 16, no. 3, p. 228; July, 1914.

The Mind's Knowledge of Reality. *Journal of Philosophy, Psychology, and Scientific Methods*, vol. 12, no. 3, p. 57; February 4, 1915.

ADAMS, R. L., Assistant Professor of Agronomy.

- A High-grade Herd. California Home and Farmer; March 6, 1915.
A Real Poultry Plant in California. Pacific Poultrycraft; October, 1914.
Emergency Sugar-beet Seed. Sugar; February, 1915.
Marketing Poultry Products. Poultrycraft; March, 1915.
The Time of Year when Prices are Highest. Orchard and Farm; March, 1915.
Winter Lambs. Country Gentlemen; March 27, 1915.

AITKEN, R. G., Astronomer in the Lick Observatory.

- Arthur von Auwers. Science, vol. 41, no. 1057, p. 495; April, 1915.
Astronomical Observatories. Nature and Science on the Pacific Coast (Paul Elder & Co.), p. 197; May, 1915.
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General Index to the Publications Astronomical Society of the Pacific, Vols. I-XXV. Blair-Murdock Press, San Francisco; August, 1914.
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Note on Comet *a* 1915 (Mellish). Publ. Astron. Soc. Pac., vol. 27, p. 87; April, 1915.
Note on the Binary Star A 570. *Ibid.*, no. 26, p. 205; October, 1914.
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One Hundred New Double Stars—Twenty-third List. *Ibid.*, vol. 8, no. 264, p. 96; November, 1914.

ALEXANDER, E. W., Instructor in Ophthalmology.

- Operative Procedures of Ocular Muscles in Heterophorias. Calif. State Journ. of Medicine, vol. 13, no. 2, p. 61; February, 1915.

ALLEN, J. T., Associate Professor of Greek.

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ALVAREZ, A. C., Assistant Professor of Civil Engineering.

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BABCOCK, E. B., Professor of Genetics.

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Raise your own Sunflower Seed. Pacific Dairy Review, San Francisco, vol. 18, no. 38; October 8, 1914.

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A New Walnut. Journ. Heredity, vol. 6, no. 1; January, 1915.

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BARROWS, D. P., Professor of Political Science and Dean of the Faculties.

A Decade of American Government in the Philippines. World Book Co., New York, December, 1914.

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BATCHELOR, L. D., Associate Professor of Plant Breeding.

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BIDDLE, H. C., Assistant Professor of Chemistry.

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BINE, R., Assistant in Medicine.

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BIOLETTI, F. T., Professor of Viticulture and Enology.

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BLISS, H. H., Instructor in Mechanical Engineering (University Extension Division).

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BREITSTEIN, L. I., Instructor in Obstetrics.

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BRIEGS, L. H., Assistant in Medicine.

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BROWN, WARNER, Assistant Professor of Psychology.

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WICKSON, E. J., Professor of Horticulture.

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WOLL, F. W., Professor of Animal Nutrition.

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WULZEN, R., Instructor in Physiology.

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YOUNG, H. D., Assistant in Agricultural Chemistry.

Chemical Analyses of Oranges. Proc. of the 45th Fruit Growers' Convention (Monthly Bull., State Comm. Hort.), vol. 4, nos. 5-6, p. 170; June, 1915.

SUNDAY HALF-HOURS OF MUSIC IN THE GREEK THEATRE

BETWEEN JULY 1, 1914, AND JUNE 30, 1915

1914

- July 5—Lorelei Trio of San Francisco: Flora Howell Bruner, first soprano; Louise de Salle Rath, second soprano; Pearl Hassock Whitecomb, contralto; Miss Francis Buckland, accompanist; and Signor Maurice Nitke, violinist; Miss Eleanore Gertrude Max, accompanist.
- July 12—Mr. Robert D. McLure, baritone; Mr. Elliston R. Ames, pianist.
- July 19—Mr. Tracy R. Plant, violinist; Miss Beatrice Clifford, accompanist.
- July 26—Mrs. Florence LeRoy Chase, coloratura soprano; Miss Louise A. Gilbert, accompanist; and Mr. Malin Langstroth, 'cellist; Mr. E. G. Stricklen, accompanist.
- Aug. 23—The Band of the Columbia Park Boys' Club, under the direction of Mr. Conrad Horst.
- Aug. 30—Miss Mizpah Jackson, soprano; Mr. Cedric Wright, violinist; Mrs. Robert Hughes, accompanist.
- Sept. 6—Mr. D. P. Hughes presented Mrs. Leota Schenk, soprano, assisted by Miss Edna C. Horan, violinist; Mr. Carl Schmidt, flutist; Mrs. Robert M. Hughes, accompanist; and Mr. D. P. Hughes, organist.
- Sept. 20—Miss Clara Freuler, soprano; Mrs. Martha Dukes Parker, accompanist; and Mr. Hawley B. Hickman, 'cellist; Mrs. Rose Leaves Allen, accompanist.
- Sept. 27—Compositions by Mr. Thomas Frederick Freeman were presented by Mr. and Mrs. Freeman.
- Oct. 4—The Pacific Quartette: Rose Nusbaum Leman, Marion Holmes Nash, Rowena Robb Mills, Emma Mesow Fitch; Mabel Hill Redfield, accompanist.

- Oct. 11—Mr. Gilbert Reek, violinist; Miss Beatrice Clifford, accompanist.
- Oct. 18—Miss Mary Pasmore, violinist; Mrs. Blanche Ashley, accompanist; and Mr. George H. B. Wright, baritone; Mr. H. B. Pasmore, accompanist.
- Oct. 25—The Pacific Musical Society presented Mrs. Marie Partridge Price, soprano; Mrs. Grace E. Mott, accompanist; Mr. Elias Hecht, flutist; Miss Joan Baldwin, accompanist; Mr. Godfrey Price; Miss Price, accompanist; Mrs. T. Goodman, soprano; Miss Caroline Augusta Nash, violinist; Mrs. L. A. Brownstone, accompanist; and Mrs. Frederick Clark, contralto.
- Nov. 1—Miss Imogen Peay, pianist; Mr. Rex N. Hamlin, flutist.
- Nov. 8—Mr. Ernest Paul Allen, violinist; Mrs. Rose Leaves Allen, accompanist; and Mr. Karoly Horvath, cymbalon soloist.
- Nov. 15—Miss Carmel Mitchell, mezzo-soprano; Mr. Austin Mosher, accompanist; and Margaret Browning, violinist; Berenice Browning, accompanist.
- Nov. 22—Miss Helen Cole, soprano; Mr. J. Faivre, 'cellist; Mr. Thos. V. Cator, Jr., accompanist; and Misses L. A. Cotton, A. A. Coulin, H. R. Collyer, L. E. Mattern, M. Sherwood, and E. Vivian, Messrs. C. M. Burton, M. A. Brown, J. Faivre, F. L. Naylor, T. Rieger, and M. K. Spiegl, 'cellists, presented by Mr. Arthur Weiss.
- Nov. 29—Miss Birdie Mae Reed, soprano; Mr. Raymond Lewis Beuthe, violinist.

1915

- Mar. 7—Compositions by Abbie Gerrish-Jones were presented, under the direction of the composer, by Marion Hovey Brower, soprano; Caroline Halstead Little, soprano; Helène Frazee, contralto; and Jack Edward Hillman, baritone, with Mabel Hill Redfield and John C. Manning as accompanists.
- Mar. 14—Compositions by Mr. Thomas Vincent Cator were presented by Miss Clara Quest, soprano, and Mr. Cator, pianist.
- Mar. 21—Compositions by Mr. Henry Bickford Pasmore were presented under the direction of the composer, by Miss Elsie Larsen, violinist; Mr. Thos. W. Pearson, baritone; and the Pasmore Ensemble Club, Mr. Pasmore, director; Mrs. Blanche Ashley, accompanist.
- Mar. 28—Compositions by Mr. Thomas Frederick Freeman were presented by Miss Emelie Nelson, soprano, and Mr. Freeman, pianist.

- Apr. 4—The University of California Glee Club and the De Koven Club, Mr. Clinton R. Morse, director; assisted by Miss Rush Bowers, soprano, and Mr. Earl Parrish, '15, tenor; Mr. E. Warren Raeder, '16, and Mr. Curtis Armstrong, '16, accompanists.
- Apr. 11—Compositions by John Leechman were presented, under the direction of the composer, by Miss Mary Anderson, soprano; Mrs. Fred H. Clark, contralto; Mr. John W. King, tenor; Mr. J. J. Petty, bass, and Mr. Chas. E. Lloyd, bass, with Miss Elizabeth Westgate as accompanist.
- Apr. 18—The University of California Cadet Band, Captain Leroy W. Allen, director.
- Apr. 25—A programme by Miss Louise Lund, soprano, and Miss Alberta Livernash, pianist, was announced; but it was not given on account of inclement weather.
- May 2—A programme of compositions by Mrs. Alma A. Crowley, to be presented by Mrs. J. Q. Lofquist, soprano; Miss Lucy Van De Mark, contralto; Mr. C. H. Oliver, baritone; Miss Alice Davies, violinist, and Mrs. Crowley, pianist, was announced; but it was not given on account of inclement weather.
- June 27—Jane Abercrombie, soprano; Mrs. Robert Hughes, accompanist.

UNIVERSITY MEETINGS

1914

Aug. 17—President Benjamin Ide Wheeler.

Aug. 28—Dr. John L. Seaton, President of the College of the Pacific.

Dr. Moritz Bonn, Director of the Handelshochschule, Munich, Germany; Lecturer in Political Economy, University of California.

Music: University of California Glee Club.

Sept. 9—Hon. John F. Davis, Grand First Vice-President Native Sons of the Golden West.

Mr. Charles E. Chapman, Instructor in California History.

Sept. 25—Richard F. Scholz, Assistant Professor of Ancient History, Rhodes Scholar from Wisconsin, 1904–07.

Vincent K. Butler, Rhodes Scholar from California, 1911–14.

Music: University Cadet Band.

Oct. 9—Bishop Edwin H. Hughes, LL.D., Resident Bishop of the Methodist Episcopal Church.

Music: E. G. Stricklen, piano; Malin Langstroth, '18, 'cello.

Oct. 23—Dr. George C. Pardee, '79, ex-Governor of California.

Mr. Charles H. Bentley, '91, Advisory Chairman of Committee on Bonds.

Music: University of California Glee Club and Women's Mandolin Club.

Nov. 13—Jay Dwiggins, Jr., '11, Captain 1910 Football Team.

Ezra W. Decoto, '00, former Graduate Manager.

Milton H. Schwarz, '01, former 'Varsity Yell Leader.

Music: University Cadet Band; University of California Glee Club.

1915

Jan. 22—Dr. Bernard Moses, Professor of History and Political Science, Emeritus.

Music: Cornet Quartette.

Feb. 5—Professor Andrew Fleming West, Dean of the Graduate School of Princeton University.

Dr. H. K. Schilling, Professor of the German Language and Literature.

Music: University of California Glee Club.

Mar. 5—Hon. August Schvan, formerly Secretary of the Swedish Legation at Petrograd and Chamberlain to the King of Sweden.

Professor William A. Scott, Director of the School of Commerce in the University of Wisconsin.

Music: Treble Clef Sextette.

Mar. 19—Hon. Alfred Deakin, M.P., Prime Minister of the Commonwealth of Australia, Commissioner General of the Commonwealth of Australia to the Panama-Pacific International Exposition.

Music: Men's Mandolin Club.

Apr. 2—Farnham P. Griffiths, '06, Attorney.

Douglas Brookman, '10, Attorney for the State Railroad Commission.

Max Thelen, '04, President of the State Railroad Commission.

Clare M. Torrey, '13, Secretary to the President.

Eugene Schobinger, Captain of the Illinois Track Team.

Music: University Cadet Band.

Apr. 16—Victor H. Doyle

Paul Cadman

Sidney C. Howard

Rene Guillou

J. H. Levy

H. L. Dunn

Paul E. Peabody

Miss Sophia McEntyre

Miss Leslie Wilde

Miss Hertha Todd

E. J. Fenstermacher

Harvey Roney

Colis Mitchum

Dwight G. Vedder

Charles E. Street

COMPTROLLER'S REPORT AND
FINANCIAL STATEMENT

1914-1915

COMPTROLLER'S REPORT

*The President and Regents,
of the University of California.*

GENTLEMEN :

The annual financial report of the University of California, approved by your auditors, herewith is presented.

In addition to the usual statistical tables, there is also presented for the first time an outline of the organization of the Office of the Comptroller and a brief review of the year. Succeeding annual reports may well carry a more detailed summary of the work of this office, but at present it is deemed desirable to offer merely a general view of its organization and its place in the University body.

The Office of the Comptroller is the business agency of the University. Its work has nothing to do with the administration of the two major functions of a university, teaching and research. The business office is charged with the administration of the trusts held by the Regents, with accounting for all moneys received and expended, with the management of the construction of buildings and with the purchase of materials. This organization is in part responsible directly to the President of the University and in part directly responsible to the Board of Regents through committees. In brief, it is the business of the Comptroller and his staff to obtain financial support for the University from various sources and to be responsible, under the direction of the President and Regents, for the disbursement of these funds, in accordance with the Rules of the Regents, the laws of the State, and, in certain cases, the rules of the Federal government.

Five divisions make up the organization of the Comptroller's Office.

The Accounting Department, employing thirteen people, keeps the record of receipts and disbursements and also renders such special reports as are required by the State and Federal government and the trust properties.

The Purchasing Department has charge of the purchase of all materials required by the University. During the year ending June 30, 1915, there was expended through this department \$541,383 in the purchasing of seventeen thousand items. That the work of the Purchasing Department is exacting and detailed is apparent from the wide range of articles purchased, which vary from the most delicate scientific instruments to coal by the carload. In nearly all purchases at least three bids are obtained in the open market. Final direction of purchases for academic usage lies with the President of the University, who signs all requisitions and certifies that, in his opinion, the articles that have been requested by the departmental heads are necessary and proper.

During the year just closed the Cashier's Department has handled \$215,000 paid in by students for fees and deposits.

The Engineering Department has developed its scope greatly. Commencing with sanitary engineering problems on the Campus, this department has expanded until now it is handling also the sanitary, electrical and water problems of the University Farm at Davis, the Citrus Experiment Station at Riverside, the Scripps Institution at La Jolla, Kearney Park and the Bear Gulch Water Company. At La Jolla a concrete and steel pier extending one thousand feet out into the open sea has been constructed according to the design and under the direction of our engineer. At Riverside, under the same department, is being installed a domestic water supply and an irrigation system for the new station. At Kearney a new system of fire protection has been installed. All of the engineering problems in connection with the Bear Gulch Water Company are now under the direction of this department.

The policy of the Operating Department, which includes the care of the grounds and buildings and the electric light and power plant at Berkeley, is directed by the President of the University. At the suggestion of the President, the Comptroller administers the financial and business matters of the Operating Department. The budgets of this department are four:

Site, care of grounds	\$20,000
Repairs, care of the structure of buildings	17,500
Janitors	42,000
Heat, Light and Power, operation of plant	40,000
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Annual cost of maintenance and operation of grounds and buildings at Berkeley	\$119,500

Up to July 1, 1915, the Electric Light and Power Department was a separate organization under Professor C. L. Cory, Dean of the College of Mechanical and Electrical Engineering. With the beginning of the new fiscal year this was consolidated with the Operating Department and Professor Cory became Consulting Electric and Heating Engineer.

This organization of the Comptroller's staff which has been sketched has been put together to accomplish the purposes outlined in the opening paragraphs. The broad scope of the University's interests and the varied character of its business problems make it essential that the office which is responsible for them should be unusually adaptable and flexible.

The Regents have directed the Comptroller to meet with State officers and the Legislature to present the University's financial needs and to carry through the Legislature the budget finally adopted jointly by the Board of Regents and the State Board of Control. This arrangement went into effect with the session of 1913. In 1911 the Legislature appropriated for University purposes the sum of \$2,275,000 for the succeeding biennial period. The session of 1913 increased this amount to \$3,475,000. In 1915 the Legislature appropriated \$3,243,236 for teaching purposes and the people of California added by

bond issue \$1,800,000 for permanent improvements, making a total of \$5,043,000 of State money appropriated for University purposes during the year just closed. Though the Governor, the State Board of Control and the Legislature during the years of 1913 to 1915 have aided the University greatly and have increased appropriations largely, yet the income of the University of California is far below that which is received by other state universities with smaller registrations. Beyond question also, California's appropriations are far below what this University must receive in order to carry on its public service and uphold its standard of instruction.

The Office of the Comptroller is now being adjusted so that it may carry on the business management of the large construction programme to be completed in the next two years. The total cost of this programme will be \$3,000,000, and will include projects scattered from San Diego to San Francisco. The work now under way at the Scripps Institution of Biological Research will approximate \$100,000. The construction of the buildings for the Citrus Experiment Station at Riverside will cost \$125,000. Four buildings at Berkeley, a recitation building, the completion of the Library, the Agriculture Building, and a unit of the Chemistry Building were provided by the bond issue of \$1,800,000. Also, on the Berkeley Campus there is to be completed the Sather Campanile and Esplanade at a cost of \$254,000. In San Francisco there is now being built the University Hospital from moneys given by generous friends. The total cost of its construction and furnishings is \$725,000. Subject to the date of approval of certain plans by the Regents, this entire programme will stand completed July 1, 1917, and many parts will be finished much earlier.

The Regents of the University hold endowments to the value of \$5,591,839.70. Of this amount \$1,337,838.31 is invested in mortgages, \$1,930,052.18 in other securities, and \$2,323,949.21 in real properties. The net earning for 1914-15 on the University endowments was 5.7101761 per cent. Of all the trusts of the

Regents, probably the two most unique are Kearney Vineyard and the Bear Gulch Water Company. Kearney Vineyard, the gift of M. Theo. Kearney to the University of California, is located seven miles west of Fresno. The property contains 5400 acres, the largest portion of which is in alfalfa rented to dairy men; 230 acres are in a park kept always open to the public; 725 acres are in muscat, Thompson and Sultana vines, and small acreages are also planted to olives, oranges and figs. For the present Kearney Vineyard is operated under the direction of the Comptroller as a commercial project, the income being used toward the support of the College of Agriculture. The net income for the year ending June 30, 1915, was \$36,606.59. The production of raisins was increased, but the low prices of hay reduced not only the value of the hay raised but the amount of net rentals.

The entire raisin crop of Kearney for 1914 was delivered to the California Associated Raisin Company as "layers" as distinguished from the usual method of handling the crop in bulk.

The tonnage for the last three years in muscats:

1912 crop	753.5 tons bulk goods
1913 crop	640 tons bulk goods
1914 crop	802 tons layer goods

Besides this, there were 23 tons of Thompsons and 6.5 tons of Sultanas, making a total of 831.5 tons for 1914 and the record for Kearney Vineyard.

The olive crop for 1914 proved profitable. Forty-one tons of olives were harvested and sold for \$3362.54, which was \$100 a ton for pickling and \$45 a ton for oil olives. All oil olives are being grafted to pickling varieties to take advantage of the larger prices. Also 80 acres in a block have been newly planted to Mission olives and 700 additional trees have been set out in the park to replace orange trees or to fill in hitherto waste places.

Oranges are not a commercial crop at Kearney. Owing to the freeze of 1913, the orange crop of 1914 was only 647 packed boxes.

The fig crop on 2300 mature trees was sold in advance in January for \$5000 cash. During the past three years 600 new fig trees have been planted.

Some alfalfa land every year needs plowing and reseeded. The past year has seen 300 acres renewed and a fine stand of alfalfa is now taking the place of the worn-out fields of a year ago.

For the accommodation of married workingmen, five additional houses of the bungalow type have been built. All these houses were immediately rented for \$6 per month, which includes water and electric lights. The community at Kearney now numbers twenty-two families of contented people. May not this be a forerunner of a solution to the problem of unemployment and migratory labor?

Kearney Vineyard today is a commercial enterprise, and effort is being made along three distinct and important lines. First, to produce the largest crops and those of highest standard; second, to provide, on a commercial scale, ways and means for certain important agricultural experiments in co-operation with the Department of Agriculture, chief of which is a reclamation of a tract of 160 acres of alkali land; third, the providing of adequate living facilities for permanent farm labor. In all three of these directions present indications seem to point to success.

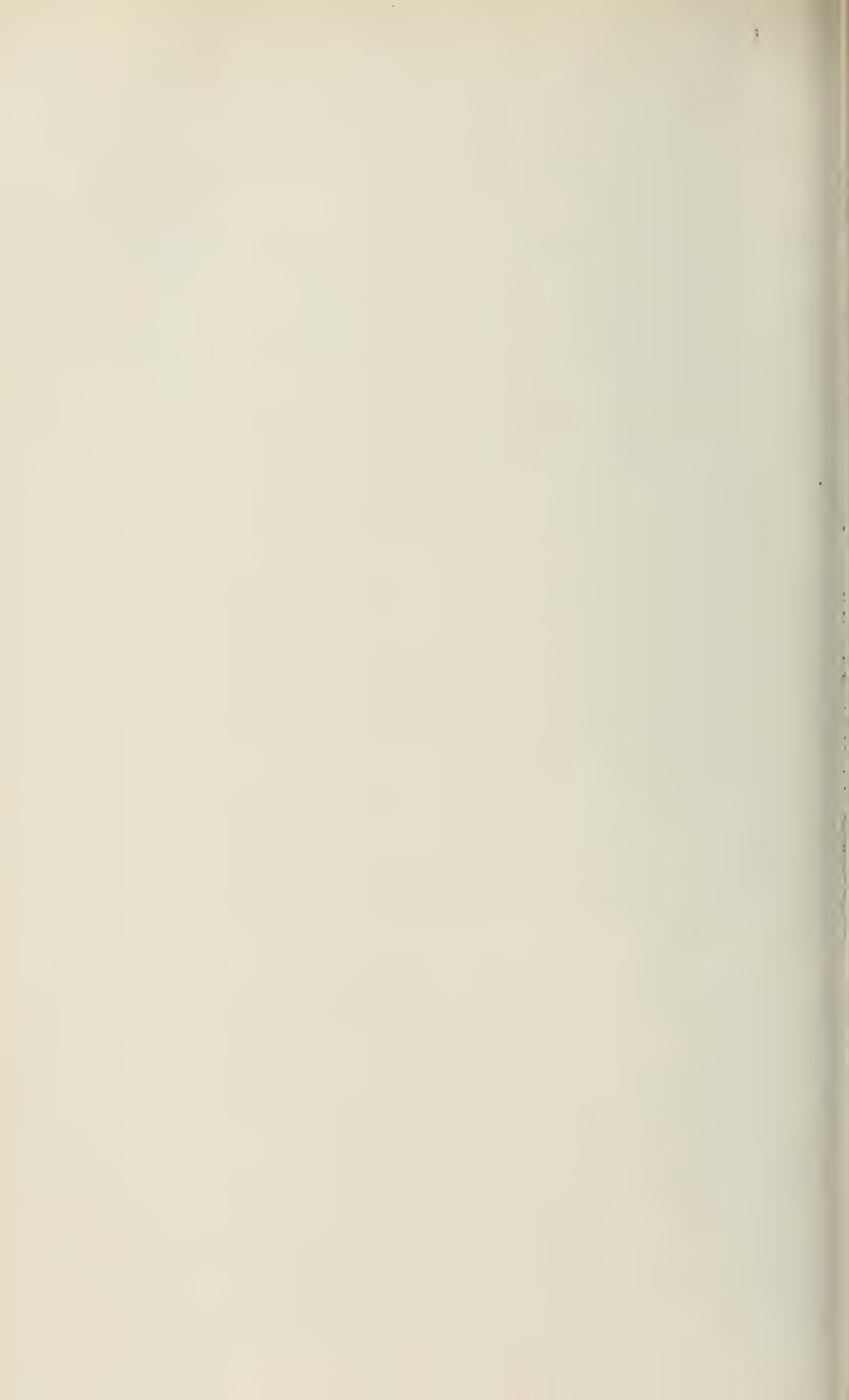
The University of California is possibly the only university in the world which operates for profit a public utility. The control of the Bear Gulch Water Company, which serves the communities between Palo Alto and Redwood City, came into the hands of the University through the generosity of Miss Flood as one of the endowments of the Department of Economics. In October, 1914, the management of the company was taken over by the Comptroller's Office. This company serves about four hundred and fifty customers who are scattered over an area of eight square miles. The value of the plant is \$550,000, but it has scarcely been producing interest on its outstanding bond issue of \$206,000. The present management is bending

every effort to provide an adequate supply of good water, and to build up thereby the annual income of the property. The task is difficult in that the company has hitherto borne a poor name among its patrons. In the eight months of active management on the part of this office, the reservoir has been cleaned for the first time in eight years; screens have been installed in the gate houses, pipe systems and water mains have been changed to give added supply, and a weekly systematic sampling schedule of the water has been installed, the analyses of which are reported by the State Hygienic Laboratory.

This sketch of the operations of the business office of the University of California has necessarily been roughly drawn. The trusts of the Regents are constantly increasing as the greatness of the University takes hold of the imagination of the people of California, and the duties and responsibilities of the business office are bound to increase in like proportion. Though unquestionably a necessary part of the entire University organization, yet the Comptroller and his associates play a very minor rôle. The Office of the Comptroller is essentially a service department in the great plan. Its success must depend entirely upon its ability to assist in the upbuilding of the great purposes of the University of California, teaching, research and public service.

Respectfully,

RALPH P. MERRITT,
Comptroller.



AUDITOR'S CERTIFICATE

The Finance Committee of the

Board of Regents of the University of California.

DEAR SIRs: The books and accounts of the University of California have been audited for the year ending June 30, 1915, and we certify that the Balance Sheet of June 30, 1915, the Statement of Income and Expenditures for the year ending June 30, 1915, and the accompanying Schedules are in accordance therewith, and, in our opinion, correctly exhibit the financial condition of the University.

The Investment securities have all been examined, and agree with the records.

The Income from the Trust Funds has been expended in accordance with the specified conditions of the various trusts.

McLAREN, GOODE & Co.,

Certified Public Accountants.

SAN FRANCISCO, CAL., October 30, 1915.

INCOME AND EXPENDITURES

FROM JULY 1, 1914 TO JUNE 30, 1915

INCOME

Schedules

No. 1.	Income prior to June 30, 1914, brought forward	\$346,328.88
No. 2.	United States appropriations	90,000.00
No. 3.	State Appropriations	1,685,387.71
No. 4.	Students' Fees	252,183.25
No. 5.	Clinics of Hospitals and Infirmary	53,075.43
No. 6.	Departmental Sales, etc., Receipts	199,273.19
No. 7.	Income from Investments	236,854.68
No. 8.	Gifts:	
	For Current Use.....	70,388.39
	" Buildings and Improvements ..	9,249.92
	" Endowments	147,611.71
	Kearney Vineyard Income	40,000.00
	Total Income	2,784,028.26
	Deficit for the year.....	26,448.88

\$3,156,785.54

EXPENDITURES

Schedules

D. 9. Administration and Operation	\$354,341.97	
D. 10. Buildings and Improvements	438,575.86	
D. 11. Education and Research	1,689,402.59	
D. 12. Disbursements from Class Funds, Scholarships, Fellowships and Prizes	32,653.17	
D. 13. Departmental Sales, etc., Expenditures	187,561.12	
Interest paid to Endowment Pool, etc.....	25,082.13	
Total Expenditures.....		2,727,616.84
Net Additions to Endowment Funds		178,612.55
D. 14. Income prior to June 30, 1915, carried forward	311,648.70	
<u>Less</u> Expenditures prior to June 30, 1915, carried forward	61,089.55	250,559.15
		<hr/>
		\$3,156,788.54
		<hr/>

[Schedule No. 1]

INCOME AND EXPENDITURES PRIOR TO JUNE 30, 1914, BROUGHT
FORWARD

State appropriations		\$860.20
Agricultural Department sales		30,848.03
Fund interest accounts		36,011.14
Scholarships and Prizes		298.30
Donations		19,701.13
Permanent Building Fund		11,275.97
Miscellaneous		10,541.56
J. K. Sather Fund for Campanile		143,043.18
University Hospital Building Fund		56,704.37
		<hr/>
		\$309,283.88
<i>Deduct</i> Construction Accounts	\$9,437.66	
Transfer to Asset and Provision Accounts	6,557.81	
	<hr/>	2,879.85
		<hr/>
		\$306,404.03
Summer Session Fees, 1914, expended during the months of		
July and August, 1914		\$39,918.35
		<hr/>
		\$346,322.38
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[Schedule No. 2]

INCOME FROM UNITED STATES

Adams Fund	\$15,000.00
Hatch Fund	15,000.00
Smith Lever Fund	10,000.00
Morrill College Aid Fund	50,000.00
	<hr/>
	\$90,000.00
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[Schedule No. 3]

STATE APPROPRIATIONS

1914 APPROPRIATIONS

State University Fund:

For general purposes	\$696,038.42	
For Permanent Building Fund	233,179.47	
For scholarships	3,500.00	
		<hr/>
		\$932,717.89
General support		200,000.08
Restoration of income		31,000.00
Los Angeles Medical Department equipment		8,598.66
Los Angeles Medical Department maintenance		9,927.00
Scripps Institution for Biological Research		7,625.00
Insecticide and Fungicide Control		5,982.19
Agriculture		385,926.79
University Farm classroom and library		35,022.00
University Farm small buildings		1,654.23
Experiment Station land, Southern California		55,058.35

1913 APPROPRIATIONS

University Farm, dormitory	11,454.01
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1911 APPROPRIATIONS

University Farm, buildings	26.00
University Farm, equipment	40.50
University Farm, pumping plant	355.01

\$1,685,387.71

[Schedule No. 4]

STUDENTS' FEES AND DEPOSITS

Agriculture	\$1,432.67
Anatomy	71.35
Astronomy	331.25
Bacteriology	2,370.92
Botany	1,579.80
Changing courses	2,164.00
Civil Engineering	2,892.80
Chemistry	14,962.44
Delayed registration	1,488.00
Diplomas	5.00
Dentistry	17,703.40
Dentistry, special account	547.20
Dentistry, special account, celluloid	22.50
Gymnasium suits	260.56
Gymnasium fees	20,323.90
History I	1,247.50
Law Library	3,092.50
Mechanics	2,354.20
Mineralogy	420.50
Mining	633.85
Medical Department, San Francisco	18,139.30
Medical Department, Los Angeles	215.00
Non-resident	6,400.00
Physics	5,017.25
Physiology	369.95
Special examinations	1,815.00
Students' Infirmary fees	33,334.10
Stenography and Typewriting	560.00
University Extension	21,105.36
University Extension, Dentistry	1,014.75
Zoology	1,574.27
Appointment Secretary Letter fee	1,359.67
Summer Session fees	87,374.26
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	\$252,183.25
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[Schedule No. 5]

CLINICS OF HOSPITALS AND INFIRMARY

University Hospital, San Francisco	\$36,530.78
Medical Department, Los Angeles	3,838.29
Students' Infirmary	5,486.15
Dentistry Department, San Francisco	7,220.21
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	\$53,075.43
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[Schedule No. 6]

DEPARTMENTAL SALES, ETC., RECEIPTS

Agricultural:

Citrus	\$770.47	
Dairy	14,721.87	
Dairy certification, Alameda	2,581.80	
Dairy certification, San Francisco	1,994.60	
Fertilizer Control	10,929.10	
Floriculture	107.06	
Hog cholera serum	40,728.59	
Imperial	72.21	
Insecticide and Fungicide registrations	10.00	
Kearney Experiment Station	221.46	
Official advanced registry tests	5,560.02	
Viticulture	363.33	
Veterinary	2,058.03	
Soil Survey	387.89	
Photographic	87.29	
Agricultural Extension	600.65	
Nutrition	175.00	
University Farm income	101,471.05	
		\$182,840.42

Various:

Library fines	\$1,198.26	
Sale of wood, etc.	370.25	
Sale of publications	2,723.50	
Sale of syllabi	757.71	
Sale of Keeler Volume	9.00	
Sale of Teptunis Papyri	45.23	
Sale of syllabi, History I	147.40	
Academy of Pacific Coast History	101.90	
Interest on daily cash balances	3,695.11	
Interest on Students' Infirmary notes	237.79	
Rent of cottages and lands	2,389.62	
Music and Dramatic	378.47	
Refund of items charged off .....	.62	
Storehouse profit	2,535.68	
Scripps Institution, miscellaneous receipts	1,766.27	
Sale of equipment, Los Angeles Medical Department	75.96	
		16,432.77
		<u>\$199,273.19</u>

[Schedule No. 7]

INCOME FROM INVESTMENTS

Income from Endowment Pool investments:

Mortgage interest	\$80,732.90	
Bond interest	60,185.00	
Dividends on stock	5,491.00	
Rents	\$42,246.76	
Less expenses	609.80	
	<hr/>	41,636.96
F. M. Smith collateral loan	814.18	
Interest on Hooper Fund expenditures	10,688.09	
Interest on Permanent Building Fund	12,810.24	
Interest on moneys under-invested	11,412.76	
	<hr/>	\$223,771.13

Income from investment of funds not included in
Endowment Pool:

Jucksch Endowment Fund	\$1.00	
W. D. Thompson Memorial Fund	2,710.97	
J. Clute Wilmerding Fund	4,067.93	
M. Kellogg Fellowship Fund	1,200.00	
F. Phelps Memorial Loan Fund	180.00	
Richardson Latin Translation Prize Fund	64.00	
Jane K. Sather Historical Library Fund	320.00	
Barbara Weinstock Lectureship Fund	527.05	
University Hospital Building Fund	1,345.13	
Doe Library Fund	2,100.00	
Interest on loans to students	379.11	
T. F. Colin European Fellowship Fund	85.45	
S. C. Irving Prize Fund	22.91	
Lick Observatory Fund	80.00	
	<hr/>	13,083.55
		<hr/>
		\$236,854.68
		<hr/>
		<hr/>

[Schedule No. 8]

GIFTS

For current use:

Mrs. Phoebe A. Hearst, Architecture	\$1,000.00
Mrs. Phoebe A. Hearst, Mining	499.98
Mrs. Phoebe A. Hearst, Anthropology	1,680.00
Mrs. Phoebe A. Hearst, Scholarships	2,400.00
Mrs. Phoebe A. Hearst, printing two volumes Cervantes	550.00
Carnegie Foundation for Advancement of Teaching	18,159.06
Carnegie Foundation for International Peace Lectures	550.00
Miss Ellen B. Scripps, Institution for Biolog- ical Research	9,000.00
E. W. Scripps, Institution for Biological Re- search	1,500.00
Chamber of Commerce, San Diego, Institution for Biological Research	50.00
State Normal School, San Diego, Institution for Biological Research	50.00
Mrs. E. A. Drexler, for University Hospital	2,400.00
Miss Annie M. Alexander, Museum of Verte- brate Zoology	7,572.73
Name withheld, Museum of Vertebrate Zoology	1,380.00
G. W. Marston, Museum of Vertebrate Zoology	50.00
S. T. Mather, Museum of Vertebrate Zoology ..	100.00
For destruction of sparrows, Museum of Verte- brate Zoology	6.30
Hugo A. Taussig, Bertha H. Taussig Scholar- ships	335.66
State Rivers and Water Supply, Australian Scholarships	968.00
Congregational Church Scholarships	75.00
Presbyterian Church Scholarships	681.66
Native Sons of the Golden West Scholarships ..	3,000.00
San Jose High School Scholarships	125.00
Levi Strauss Scholarships	3,500.00
E. Gates Scholarships	600.00
Twelve Women Graduates Sophomore Scholar- ships	125.00

Carried forward \$56,358.39

[Schedule No. 8—Continued]

<i>Brought forward</i>	\$56,358.39	
Bonnheim Prize	250.00	
Bryce Historical Essay Prize	100.00	
Knights of St. Patrick, Library, Irish books	100.00	
Estate of D. O. Mills, Lick Observatory	6,000.00	
G. F. Paddock, Lick Observatory	100.00	
National Academy of Arts and Sciences, Lick Observatory	500.00	
A friend, Palaeontology	2,400.00	
I. W. Hellman Lectures	2,500.00	
J. K. Moffitt, Panama-Pacific International Ex- position Exhibit	100.00	
J. K. Moffitt, Pathology	1,200.00	
Summer Session Faculty, Summer Session	500.00	
Donations for Students' Infirmary	50.00	
Donations for University Hospital	60.00	
Donations for Crutch and Splint Fund, Univer- sity Hospital	50.00	
Miscellaneous donations	120.00	
		\$70,388.39

For buildings and improvements:

Mrs. Phoebe A. Hearst, grading around Mining Building	\$2,443.77	
Mrs. Phoebe A. Hearst, Greek Theatre repairs ..	2,531.15	
Mrs. Phoebe A. Hearst, Women's Swimming Pool	2,500.00	
Mrs. Phoebe A. Hearst, Mining Building equip- ment	1,000.00	
Miss Ellen B. Scripps, buildings at La Jolla	500.00	
W. M. Fitzhugh, marble chairs in Greek Theatre	275.00	
		9,249.92

For additions to endowment funds:

Name withheld, Dr. C. W. and Mrs. Sarah E. Fox Memorial Fund	\$100,000.00	
Miss E. Marion Warren, John Dolbeer Scholar- ships	17,109.06	
Name withheld, Edith Claypole Memorial Re- search Fund	10,000.00	
<i>Carried forward</i>	\$127,109.06	\$79,638.31

[Schedule No. 8—Continued]

<i>Brought forward</i>	\$127,109.06	\$79,638.31
Heirs of late F. W. Dohrman, Memorial Loan Fund	5,000.00	
Class of 1913, Class Fund	1,190.00	
Associated Women Students, Fund for Housing of Women Students	1,000.00	
Prytanean Society, Fund for Housing of Women Students	1,075.00	
F. W. Bradley, Mining Students' Loan Fund ..	1,000.00	
Y. W. C. A. Fund	1,000.00	
Hugo A. Taussig, Bertha H. Taussig Memorial Scholarship Fund	10,000.00	
Estate of Mme. Colin, T. F. Colin Fellowship Fund	157.65	
Alumni Association, Alumni Association Life Membership Fund	80.00	
	<hr/>	147,611.71
		<hr/>
		\$227,250.02
		<hr/> <hr/>

(Schedule No. 9]

ADMINISTRATION, MAINTENANCE AND OPERATION

Administration salaries		\$56,399.48
Advisors	\$3,750.00	
Affiliated Colleges, repairs	904.06	
Affiliated Colleges, site	536.04	
Affiliated Colleges, watchman	1,166.90	
Auditing	2,337.15	
Administration, assistance	24,139.94	
Comptroller's Office, assistance	24,537.44	
Electric Light and Power, current repairs	2,840.70	
Electric Light and Power, maintenance, etc.	47,537.19	
Equipment	1,142.93	
Examination of schools	2,500.28	
Expense	14,409.93	
Fuel	1,233.37	
Janitors	40,919.75	
Lectures	667.00	
Postage	3,500.00	
President's Contingent	3,000.00	
Printing	1,047.02	
Publications	13,343.68	
Repairs	15,701.73	
Site	20,505.97	
Stationery	2,518.98	
Storehouse maintenance	1,879.59	
Steam heating maintenance	6,995.24	
Telephone, telegraph and express	6,315.65	
Water	10,773.55	
Accounts written off	120.59	
Cash, overs and shorts	24.47	
Military uniforms	16.55	
		<hr/> 254,365.70
Students' Gymnasium	\$12,416.50	
Students' Infirmary	31,160.29	
		<hr/> 43,576.79
		<hr/> <hr/> \$354,341.97

[Schedule No. 10]

NEW BUILDINGS AND IMPROVEMENTS

Buildings and improvements in Berkeley:

Architecture and Drawing buildings, heating ..	\$9,003.57	
Architecture Building Annex	16.43	
Boalt Hall of Law	9,136.74	
California Hall alterations	647.20	
Chemistry Building, Addition No. 2	26,208.67	
Chemistry Building, alterations	40.30	
Chemistry, new laboratory equipment	2,080.83	
Doe Library Building	826.80	
Domestic Science, alterations and equipment ..	1.05	
Drawing Building	1,870.67	
East Hall alterations	1,508.84	
Fertilizer Control Laboratory addition	9,674.47	
Grading for drill ground	121.70	
Greek Theatre repairs	1,590.51	
Harmon Gymnasium alterations	155.14	
Hearst Hall Annex	22,772.91	
Hearst Hall tennis courts	21,599.59	
Motor generator set for Power Plant	2,165.20	
Marble chairs in Greek Theatre	631.50	
Mining Building equipment	698.63	
Drinking fountain	592.40	
Service Department	8,691.08	
Swimming Pool pumping outfit	56.85	
Women's Swimming Pool	12,270.65	
Women's Athletic Field	2,257.81	
Landscape Gardening	18.27	
Nursery and propagation of plants and trees ...	3,613.95	
Tree planting and trail making	74.50	
Wheeler Hall	5.60	
		\$138,331.86
Sather Campanile		93,393.28

Buildings and improvements at University Farm:

Classroom and library	\$35,022.00	
Small buildings	1,680.23	
Dormitory	11,454.01	
		48,156.24

Carried forward \$279,881.38

[Schedule No. 10—Continued]

<i>Brought forward</i>		\$279,881.38
Buildings and improvements not in Berkeley:		
University Hospital Building alterations	\$1,720.96	
University Hospital Building	31,873.15	
Scripps Institution for Biological Research	1,443.36	
Los Angeles Medical Department equipment	8,598.66	
		<hr/>
		43,636.13
Purchase of land in Southern California		55,058.35
Sixth installment of the Ten-year Programme:		
Agriculture Hall	\$20,000.00	
Doe Library furnishings	20,000.00	
Watershed lands	20,000.00	
		<hr/>
		60,000.00
		<hr/>
		\$438,575.86
		<hr/> <hr/>

[Schedule No. 11]

EDUCATION AND RESEARCH

Various departments at Berkeley:

Expenditures from general funds	\$775,699.73	
Expenditures from donations	39,807.24	
Expenditures from endowment funds	74,998.73	
Expenditures from Morrill College Aid Fund ..	22,500.33	
		<hr/>
		\$913,006.03

University Hospital:

Expenditures from general funds	\$63,437.77	
Expenditures from hospital receipts	36,530.78	
Expenditures from Endowment Pool income	6,546.66	
Expenditures from donations	4,891.65	
		<hr/>
		111,406.86

Agricultural departments:

Expenditures from general funds	\$31,823.77	
Expenditures from Adams Fund	15,000.00	
Expenditures from Hatch Fund	15,000.00	
Expenditures from Smith Lever Fund	10,000.00	
Expenditures from Morrill College Aid Fund ..	27,499.67	
Expenditures from State appropriations	392,314.69	
Expenditures from donations	43.20	
		<hr/>
		491,681.33

University Extension	\$31,105.36	
University Extension, Dentistry	1,113.32	
Lick Observatory	35,974.02	
Scripps Institution for Biological Research	25,306.87	
Purchase of library books out of donations and endowment funds	5,949.96	
Summer Session expenditures	59,768.46	
Los Angeles Medical Department	14,090.38	
		<hr/>
		173,308.37

\$1,689,402.59

[Schedule No. 12]

DISBURSEMENTS FROM CLASS FUNDS, SCHOLARSHIPS, FELLOWSHIPS AND PRIZES

Alumna Scholarship	\$62.50
Australian Scholarship	968.00
Congregational Church Scholarship	75.00
W. R. Davis Scholarship	375.00
Dolbeer Scholarship	800.00
Helen DuBois Scholarship	450.00
J. M. Goewey Scholarship	250.00
Phoebe A. Hearst Scholarship	2,400.00
C. M. Jones Scholarship	5,300.00
A. S. Johnston Scholarship	175.00
Paget Scholarship	150.00
F. M. Pixley Scholarship	200.00
Presbyterian Church Scholarship	681.66
San Jose High School Scholarship	125.00
S. Sanborn Scholarship	750.00
State of California Scholarship	3,900.00
Sophomore Scholarship	125.00
H. Stebbins Scholarship	293.24
Levi Strauss Scholarship	3,625.00
W. D. Thompson Scholarship	3,000.00
M. Kellogg Fellowship	516.66
LeConte Fellowship	500.00
University Fellowship	3,600.00
Native Sons of the Golden West Fellowship	2,100.00
Bonnheim Prize	250.00
Bryce Historical Essay Prize	100.00
Newman Hall Essay Prize	100.00
E. C. Cook Prize	50.00
Irving Prize	25.00
Richardson Latin Translation Prize	75.00
Medal	120.00
T. F. Colin Fellowship Fund	105.00
Payments to class secretaries and others	1,406.11

\$32,653.17

[Schedule No. 13]

DEPARTMENTAL SALES, ETC., EXPENDITURES

Agricultural:

Agricultural Extension	\$600.65	
Citrus	468.39	
Dairy	14,280.95	
Dairy Certification, Alameda	2,376.86	
Dairy Certification, San Francisco	2,004.74	
Entomology	12.08	
Fertilizer Control	12,637.51	
Floriculture	100.90	
Hog cholera serum	37,329.31	
Imperial	111.79	
Insecticide and Fungicide registrations	570.46	
Kearney Experiment Station	291.24	
Nutrition	83.40	
Photographic	2.77	
Official advanced registry tests	5,695.66	
Soil Survey	32.54	
Viticulture	297.01	
Veterinary	1,997.40	
University Farm income	107,248.72	
		\$186,142.38

Various:

Academy of Pacific Coast History	\$1,022.30	
Sale of "A Brief Account of Lick Observatory"	383.43	
Sale of "Zoe"	13.01	
		1,418.74
		<u>\$187,561.12</u>

[Schedule No. 14]

INCOME AND EXPENDITURES PRIOR TO JUNE 30, 1915, CARRIED
FORWARD

Income:

Agricultural Department sales	\$27,808.98	
Fund interest accounts	39,293.10	
Scholarships and prizes	1,960.80	
Donations	22,142.86	
Permanent Building Fund	59,350.17	
Miscellaneous	85,266.54	
Jane K. Sather Fund for Campanile	49,649.90	
University Hospital Building Fund	26,176.35	
		\$311,648.70
Less construction accounts	\$19,894.90	
Hooper Foundation Research expenses	41,194.65	
		61,089.55
		\$250,559.15

STATEMENT OF TOTAL DEFICIT

Deficit for the year, as above	\$26,441.88
Deficits to June 30, 1914	157,870.80
	<hr/>
Total deficit to June 30, 1915	\$184,312.68
	<hr/> <hr/>

BALANCE SHEET

JUNE 30, 1915

ASSETS

Schedules

Real estate and improvements:

A	Real estate in Berkeley	\$1,498,767.23	
B	Buildings and improvements in Berkeley	3,621,902.81	
C	Real estate and improvements not in Berkeley	3,178,927.60	
			<hr/> \$8,299,597.64

Equipment:

General	\$2,285,549.66	
Bancroft Library	250,005.00	
		<hr/> 2,535,554.66

Investments:

Notes receivable	\$1,370,989.00	
Bonds	1,174,171.00	
Stocks	100,552.00	
Real estate held as investments	2,323,949.21	
Balances of contracts for sale of real estate	24,900.00	
Realty Union of San Francisco cer- tificate	6,000.00	
Expenditures under G. W. Hooper Endowment Fund	245,800.62	
		<hr/> 5,246,361.83

Suspense account, Montgomery Avenue

Bonds (claim against State of Cali- fornia)	21,999.00
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Departmental and other expenditures, carried forward	55,490.26
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Amounts due from the State of Califor- nia under various appropriations	149,194.19
--	------------

Sundry debtors	133,765.72
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<i>Carried forward</i>	<hr/> \$16,441,963.30
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BALANCE SHEET—(Continued)

Brought forward		\$16,441,963.30
Cash on hand:		
I. W. Hellman, Jr., Treasurer	\$156,199.43	
Contingent funds	29,570.00	
Cash in hands of various departments deposited with Treasurer after June 30, 1915	1,949.74	
Wells-Fargo & Co. deposit	200.00	
	<hr/>	\$187,919.17
Less advances, bills paid by Treas- urer's advance checks	\$177,696.23	
	<hr/>	10,222.94
Defalcation Account		4,381.00
Revenue Deficit		184,312.68
		<hr/>
		\$16,640,879.92

LIABILITIES

Schedules

	University of California, surplus invested in fixed assets	\$10,618,048.15
	Endowment funds	5,591,839.70
	Gains in Endowment Pool investments	65,418.21
	Fund income accounts	38,885.87
	Donation accounts, unexpended balances	28,351.51
	Balances on hand to be used for specific purposes	146,462.81
	Sundry creditors	92,523.50
R	Permanent Building Fund	59,350.17
		<hr/>
		\$16,640,879.92
		<hr/> <hr/>

[Schedule A]

REAL ESTATE IN BERKELEY

University Campus site	\$1,000,000.00
Hearst Hall and Hearst Cottage site	7,000.00
Hillegass Tract site	194,991.04
Palmer House site	17,500.00
Barrow street property	63,500.00
Watershed lands	168,456.61
Sylvan way property	15,395.00
Sylvan way and College avenue (buildings and lands)	31,924.58
	<hr/>
	\$1,498,767.23
	<hr/>

[Schedule B]

BUILDINGS AND IMPROVEMENTS IN BERKELEY

Acid house	\$480.00
Agriculture, Forestry Division, portable house	1,237.76
Agricultural building (Budd Hall)	7,200.00
Agriculture Hall	212,883.85
Anatomical Library and Printing Office	6,400.00
Architectural Building	23,377.53
Bacon Library Building	60,515.74
Bacteriological Laboratory	480.00
Barn	2,300.00
Boalt Hall of Law	159,287.61
Botany Building	5,600.00
California Field	20,000.00
California Hall	271,711.33
Campanile	175,350.10
Cement sidewalks	596.25
Chemistry Auditorium	36,314.67
Chemistry Addition No. 2	28,648.75
Chemistry Building	81,000.00
Chemistry Storehouse	10,426.03
Carpenters' shop mill	1,500.00
Civil Engineering Hall	36,750.30
Civil Engineering Laboratory	2,400.00
Civil Engineering Testing Laboratory	9,366.08
Concrete bridge near Faculty Club	1,387.92
Concrete bridge near Football Statue	3,384.33
Concrete bridge at Sather Gate	10,922.86
Conservatory	10,800.00
Dairy Barn	2,400.00
Drinking fountain	619.10
Dairy manure pit	1,031.15
Dairy Milkhouse	4,160.60
Drawing Building	19,354.18
East Hall	18,000.00
Entomological Laboratory	2,569.99
Faculty Club Building	30,000.00
Fertilizer Control Laboratory	16,711.25
Girton Hall	4,032.34
Greek Theatre	45,000.00
Harmon Gymnasium	50,181.89
Hearst Hall	61,695.94
Hearst Memorial Mining Building	644,400.00
Hygiene and Pathological Building	38,896.32
Landscape gardening	3,118.85

Carried forward\$2,122,492.72

[Schedule B—Continued]

<i>Brought forward</i>	\$2,122,492.72
Mechanics Building	61,025.00
John Mitchell Monument	358.95
Museum Building	3,667.77
Mining Building, fountain and circle	15,887.54
New permanent roads	78,914.99
North Hall	20,000.00
Nursery and Propagation House	1,500.00
Painters' shop	2,000.00
Philosophy Building	8,000.00
Plant houses	700.00
Platform scales	350.00
Power, Light and Heat Plant:	
Power House (building and machinery)	73,421.29
Heating system	51,350.73
Electric construction on Campus	9,430.68
Plumbing shop	1,200.00
President's House	113,868.35
Rifle Range	501.90
Running Track	60,000.00
Sather Gateway	39,413.51
Senior Hall	5,751.42
Shooting Gallery	50.00
South Hall	126,000.00
South Hall Addition	5,681.63
Rudolph Spreckels Physiological Laboratory	25,000.00
Storage bins	1,000.00
Storehouse, general	728.43
Strawberry Canyon weir	569.80
Students' Infirmary and Annex	26,369.74
Students' Observatory	8,500.00
Superintendent's Office, Grounds and Buildings	1,200.00
Swimming tank	17,200.00
Sun-dial	350.00
Tennis courts	22,115.24
Toolhouse, Botany Garden	282.90
Trunk sewer	6,356.10
University Library	684,269.81
Viticultural Laboratory	400.00
Zoology, Museum of Vertebrate	15,094.31
Dwellings rented:	
Palmer house	2,500.00
University cottages	8,400.00

\$3,621,902.81

[Schedule C]

REAL ESTATE AND IMPROVEMENTS NOT IN BERKELEY

Affiliated Colleges, San Francisco	\$405,707.74	
San Francisco Institute of Art	235,150.00	
Wilmerding School:		
New buildings	\$52,155.87	
Old buildings	24,906.46	
Real estate	61,347.80	
	<hr/>	138,410.13
Lick Observatory, land and buildings:		
Land and buildings	\$387,000.00	
Barn	1,254.95	
Dormitory and cottages	55,169.08	
Electric Light and Power Plant	11,606.23	
Tank	2,701.00	
Vault	19,834.70	
Lands:		
Cook Tract	960.00	
Duckworth Tract	316.42	
Hartzoke Tract	262.73	
Holden Tract	511.25	
	<hr/>	479,616.36
Pacific Grove, real estate of Herzstein Seaside		
Laboratory	2,500.00	
University Farm, Davis, lands and buildings	512,998.45	
Buildings in East Oakland, Hog Serum Plant	8,695.92	
Southern California Pathological Laboratory:		
Buildings and land at Riverside	\$80,000.00	
Buildings at Whittier	12,821.31	
	<hr/>	92,821.31
Imperial Valley, buildings at Meloland	3,021.53	
Kearney Estate, Fresno	1,000,000.00	
Los Angeles Medical Department:		
Land, buildings and equipment	\$100,000.00	
Hospital buildings	24,999.70	
	<hr/>	124,999.70
<i>Carried forward</i>		<hr/>
		\$3,003,921.14

[Schedule C—Continued]

<i>Brought forward</i>		\$3,003,921.14
Scripps Institution:		
Buildings at La Jolla	\$16,500.00	
Land at La Jolla	90,000.00	
		<hr/> 106,500.00
Other real estate:		
Congressional lands	\$11,868.92	
Public building lands	800.00	
Potrero avenue lots	10,364.39	
Whitaker's Forest	9,600.00	
		<hr/> 32,633.31
University Hospital Building		35,873.15
		<hr/>
		\$3,178,927.60
		<hr/> <hr/>

[Schedule R]

PERMANENT BUILDING FUND

Balance carried forward from June 30,		
1914		\$11,275.97
One-quarter of State University Fund		233,179.47
Expenditures on construction work during year 1914-15, charged to this fund:		
Heating installation	\$9,003.57	
Architecture Building Annex	16.43	
California Hall alterations	647.20	
Chemistry Building Addition No. 2	26,208.67	
Chemistry Building alterations	40.30	
Domestic Science alterations and equipment	1.05	
Drawing Building	1,870.67	
East Hall alterations	1,508.84	
Equipment	1,142.93	
Grading for drill ground	121.70	
Harmon Gymnasium alterations	155.14	
Hearst Hall Annex	22,772.91	
Hearst Hall tennis courts	21,304.09	
Landscape gardening	18.27	
Motor generator set for power plant	2,165.20	
Nursery and propagation of plants, etc.	3,613.95	
Service Department	8,691.08	
Tree planting and trail making	74.50	
University Hospital Building alterations	1,720.96	
Chemistry, new laboratory equipment	2,080.83	
		<hr/> \$103,158.29
Boalt Hall of Law, excess expenditures over donations		9,136.74
Sixth installment of the Ten-year Programme:		
Agriculture Hall Building	\$20,000.00	
Doe Library furnishings	20,000.00	
Watershed lands	20,000.00	
		<hr/> 60,000.00
Carried forward	\$172,295.03	<hr/> \$244,455.44

[Schedule R—Continued]

<i>Brought forward</i>	\$172,295.03	\$244,455.44
Interest on money borrowed from investment monies on hand:		
Half year to December 31, 1914, at 5.69232082 per cent	\$6,891.47	
Half year to June 30, 1915, at 5.72084348 per cent	5,918.77	
	<hr/>	<hr/>
	12,810.24	
Balance carried forward to 1915-16	59,350.17	
	<hr/>	<hr/>
	\$244,455.44	\$244,455.44
	<hr/>	<hr/>
Balance forward to 1915-16		\$59,350.17
		<hr/>

STATE UNIVERSITY FUND

STATEMENT OF EXPENDITURES FOR THE YEAR ENDING JUNE 30, 1915

Administration:

Salaries	\$63,149.48	
Administrative assistance	23,177.77	
Comptroller's Office assistance	24,139.94	
Affiliated College repairs and maintenance of grounds	2,607.00	
Auditing	2,337.15	
Examination of schools	2,500.28	
Expense	14,409.93	
Fellowships	3,600.00	
Fuel	1,233.37	
Janitors	40,919.75	
Lectures	667.00	
Light, Power and Heating System	54,532.43	
Postage	3,500.00	
Publications	13,343.68	
Repairs	15,701.73	
Site improvement and maintenance	20,505.97	
Stationery	2,612.06	
Telegraph, telephone, and express	6,315.65	
Water	10,773.55	
		\$306,026.74

University Library 73,541.29

Bancroft Library 6,185.01

Departmental expenditures:

Botany	\$17,029.68	
Chemistry	52,108.05	
Civil Engineering	28,928.67	
Domestic Science	595.64	
Drawing	13,615.44	
Hygiene	5,970.70	
Lick Observatory	30,753.85	
Medicine	39,832.32	
Mining	17,690.48	
Physical Education for Men	6,475.36	
Physical Education for Women	7,020.47	
Physics	31,447.21	
Physiology	16,928.68	
Political Science	9,565.36	
Romanic Languages	28,526.98	
Zoology	3,796.49	
		310,285.38

State of California Scholarships 3,500.00

Permanent Building Fund 233,179.47

\$932,717.89

STATISTICS OF THE INFIRMARY

COMPILED BY THE UNIVERSITY PHYSICIAN

SMALLPOX VACCINATION

August 14 1914-May 12, 1915

REACTION GROUPED ACCORDING TO CHARACTERISTICS OF SCARS

	Vaccinia			Vaccinoid			Reaction of Immunity		
	M	W	%	M	W	%	M	W	%
No scar—									
Previously unvaccinated	71	69	99.3	1	....	0.7	....	....	0.0
History of vaccination									
but no scar	89	86	87.5	14	8	11.0	1†	2*	1.5
History of smallpox.....	....	....	....	1	2	27.3	3	5	72.7
Age of scar—									
Under 10 years	5	3	18.2	9	14	52.3	6	7	29.5
Over 10 years	5	3	22.2	11	9	55.6	3	5	22.2
Character of scar—									
Pitted	1	....	5.8	4	4	47.1	4	4	47.1
Smooth	11	6	25.7	14	22	54.6	5	8	19.7
Size of scar—									
Under 20 min.	11	5	23.9	11	23	50.7	7	10	25.4
Over 20 min. ....	....	1	8.3	6	1	58.3	2	2	33.4

Total observation completed, 435.

* Of these two one had an indistinct scar and one had history of vaccinia but showed no scar.

† This student had been vaccinated seven times without producing a scar.

REACTIONS FOLLOWING TYPHOID VACCINATIONS

March, 1913, to May, 1915

No. of Inoculation	Persons receiving Vaccinations			Persons reporting Reactions			Local Reactions						General Reactions					
							Slight			Severe			Slight			Severe		
	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
March-May, 1913	266	258	248	260	248	179	49	42	25	10	14	2	40	56	24	5	6	1
Summer Session, 1913	64	64	62	64	63	35	2	3	1	.....	.....	.....	16	13	5	2	3	1
Aug.-Dec., 1913	720	707	692	704	685	423	89	115	32	14	13	2	175	149	69	26	30	13
Jan.-May, 1914	382	374	372	373	369	227	19	10	1	3	.....	.....	85	84	20	1	1	1
Summer Session, 1914	80	78	75	78	72	48	1	1	.....	2	.....	.....	41	38	16	.....	.....	.....
Aug.-Dec., 1914	68	68	66	68	66	27	4	.....	.....	.....	.....	.....	27	30	4	1	1	.....
Jan.-May, 1915	59	53	52	58	52	25	.....	.....	.....	.....	2	.....	14	5	2	2	1	.....
Totals	1639	1602	1567	1605	1555	964	164	171	59	29	29	4	398	375	141	35	42	16

INFIRMARY SUMMARIES

(August 15, 1914-May 12, 1915)

DISPENSARY

	Men	Women	Total
Individuals treated	2,867	1,619	3,986
Number of treatments	19,720	11,967	31,687
Number of diagnoses	6,359	4,075	10,434
Number of smallpox vaccinations	221	216	437
Number of typhoid vaccinations	69	54	123
Number of days open			271
Average number of patients treated daily			120.51
Average number of treatments per patient			7.94
Percentage of students treated			78.6

HOUSE PATIENTS

	Men	Women	Total
Discharged—			
Well	287	140	427
Relieved	268	71	339
Not relieved	9	12	21
Deceased	1	—	1
Total number of Infirmary days			3,604
Number of days open			271
Total number of diagnoses			915
Total number of individuals			669
Students who were in the Infirmary more than once during the year			111
Average stay in days			5.3
Average number of patients per day			13.66
Largest number of patients in one day			26
Surgical cases			121
Operations			91
Anaesthesia (general)			67
Laboratory reports—			
Urine analyses			834
Throat cultures			183
Sputum			128
Blood cultures			335
Feces			12
Stomach			6
Miscellaneous			44
	Men	Women	Total
Patients examined by X-ray	90	38	128
Prescriptions			352
Excuses issued	3,517	2,710	6,227

MEDICAL EXAMINATION OF INTRANTS, 1914-15

MEN

Number examined, 1145

Abdomen, abnormal	595	Circumcision	321
Hernia	289	Phymosis	14
Liver, palpable	32	Testes, abnormal	45
Spleen, palpable	9	Atrophy, traumatic....	16
R. kidney, palpable	2	Hydrocele	5
Rigid	200	Left, enlarged	6
Relax	63	Right, enlarged	1
Chest, abnormal	226	Right, small	1
Barrel	8	Left undescended	2
Flat	184	Right undescended....	3
Funnel	19	Small	11
Pigeon	15	Heart, abnormal	138
Ears, abnormal	165	Arythema	10
Cerumen	103	Enlarged	4
Tubo tympanic catarrh	57	Myto-systolic	124
Chronic suppuration	5	Larynx, abnormal	8
Eyes—		Lungs, abnormal	146
Hypermetropia	150	Lymph nodes—	
Simple hyperopic astigmatism...	211	Cervical	220
Compound hyperopic astigmatism	122	Axillary	245
Myopia	57	Inguinal	217
Simple myopic astigmatism	66	Nutrition—	
Compound myopic astigmatism ...	96	Thin	187
Mixed astigmatism	56	Average	896
Aphakia	1	Obese	62
Blepharitis marginalis	2	Nose—	
Color blind, partially	7	Septum, spur	313
Strabismus	7	Septum, deviations	203
Presbiopia	2	Crusts	6
Exophoria	6	Chronic hypertrophy	22
Exanopic amblyopia	7	Rhinitis—	
Cataract	1	Chronic catarrhal	118
Myopic crescents	12	Turgescence	1
R. oclulus pupili	1	Polyps	2
Papillitis	2	Pollinosis	3
Leucoma adherens	3	Inferior turbinate	6
Feet—		Middle turbinate	1
Longitudinal arches—		Naso pharynx, abnormal	4
Low	388	Adenoids	2
Flat	211	Chronic pharyngitis	2
Anterior arches—		Skin, abnormal	570
Low	383	Acne—	
General development—		Back	220
Excellent	142	Chest	81
Good	709	Face	184
Fair	246	Shoulders	31
Poor	48	Trunk	54
Genitalia, abnormal	380	Eczema	1
Penis, abnormal	335		

MEDICAL EXAMINATION OF INTRANTS, 1914-15—Continued

MEN

Teeth—		Vaccination scar absent and no history of smallpox—	
Good	547	Previously unvaccinated	72
Fair	463	History of vaccination, but no scar	104
Poor	69	Varicocele	315
Neglected	62	Right	52
False	4	Left	263
Tonsils—		Vertebral column—	
Absent	31	Lordosis	274
Buried	1	Kyphosis	210
Pathological	47	Scoliosis	210
Projecting	16	Joints—	
Hypertrophy	2	Hallux valgus	12
Thyroid, enlarged	59	Hammer toe	7
		Deformity	1

HISTORY OF DISEASES PREVIOUS TO ENTERING COLLEGE

Amygdalitis	297	Nervous breakdown	1
Appendicitis	108	Otitis media	60
Chicken pox	873	Pleurisy	65
Chorea	136	Pneumonia	215
Constipation	114	Rheumatism	100
Diphtheria	135	Scarlet fever	280
Epistaxis	4	Smallpox	88
Gall bladder	1	Spinal curvature	1
Gonorrhea	46	Spinal meningitis	1
Indigestion	1	Sunstroke	2
Influenza	73	Syphilis	8
Malaria	240	Tonsillitis	1
Measles	1941	Tuberculosis	1
Mumps	943	Typhoid fever	250
Nephritis	1	Varicocele	1
Neurasthenia	25	Whooping cough	1048

HISTORY OF INJURIES PREVIOUS TO ENTERING COLLEGE

Abdomen, hernia	1	Chest, burn	2
Ankle—		Elbow—	
Fractured	3	Fractured	3
Dislocated	1	Dislocated	3
Sprained	3	Eye—	
Arm—		Contused	1
Contused	1	Lacerated	6
Dislocated	5	Burn	1
Fractured	111	Knife cut	1
Lacerated	5	Face—	
Sprained	6	Burned	2
Back, injured	1	Contused	3
Brain, concussion of	3	Lacerated	4

MEDICAL EXAMINATION OF INTRANTS, 1914-15—*Continued*

MEN

HISTORY OF INJURIES PREVIOUS TO ENTERING COLLEGE—(*Continued*)

Finger—		Ribs, fractured	10
Amputated	1	Scapula, fractured	2
Contused	4	Shoulder—	
Dislocated	5	Contused	4
Felon	1	Dislocated	2
Fractured	19	Gunshot wound of	1
Lacerated	8	Fractured	4
Sprained	2	Skull—	
Foot—		Contused	5
Fractured	3	Fractured	1
Lacerated	1	Lacerated	17
Sprained	20	Spine, concussion	2
Head, lacerated	1	Testes, contused	2
Hand—		Thigh—	
Bullet wound	1	Contused	8
Fractured	7	Dislocated	1
Lacerated	6	Fractured	4
Sprained	9	Sprained	3
Knee—		Thumb—	
Ankylosis	1	Dislocated	3
Bullet wound	1	Fractured	1
Dislocated	2	Coccyx, contused	1
Injured	1	Mastoid	1
Leg—		Molar bone, fractured	1
Abscess	1	Varicose veins	5
Fractured	12	Rupture	3
Lacerated	2	Testicle, injured	2
Sprained	3	Toe, fractured	1
Nose—		Wrist—	
Contused	2	Fractured	1
Dislocated	1	Sprained	1
Fractured	17		

HISTORY OF OPERATIONS PREVIOUS TO ENTERING COLLEGE

Abdominal abscess	1	Foot—	
Adenoidectomy	67	Operated on	2
Appendectomy	26	Tuberculosis	1
Arm—		Head—	
Fracture, operated on	1	Operated on	2
Amputated	1	Tumor	1
Breast, Adenoma	1	Haemorrhoids	1
Cheek, tumor	2	Hernia	9
Circumcision	73	Hip, operated on	1
Clavicle, fracture	1	Kidney, operated on	1
Ear, abscess	2	Leg—	
Eye, operated on	2	Abscess	1
Face, operated on	1	Operated on	1
Finger, amputated	1		

MEDICAL EXAMINATION OF INTRANTS, 1914-15—*Continued*

MEN

HISTORY OF OPERATIONS PREVIOUS TO ENTERING COLLEGE—(*Continued*)

Neck—		Submucous	1
Abscess	7	Turbinates	4
Glands	5	Pyemia	1
Operated on	1	Testicle, removed	3
Nose—		Throat, operated on	1
Bone removed	1	Thumb, amputated	1
Fracture	1	Thigh, operated on	2
Laceration	2	Tonsillectomy	100
Operated on	17	Tuberculosis drainage	1
Polypus	4	Urethia	1
Septum	1	Varicocele, operated for	1

MEDICAL EXAMINATION OF INTRANTS, 1914-15

WOMEN

Number examined, 1017

Abdomen, abnormal	269	Exophoria	5
Hernia	2	Blepharitis	13
Liver, palpable	2	Myopic crescent	7
Right kidney	92	Blind	1
Left kidney	28	Papillitis	3
Spleen	1	Color blind	1
Rigid	77	Feet, flat	364
Relax	67	General development—	
Chest, abnormal	179	Excellent	14
Flat	38	Good	636
Funnel	5	Fair	324
Pigeon	29	Poor	43
Barrel	3	Heart, abnormal	132
Depressed sternum	11	Irregular	8
Prominent sternum	93	Enlarged	10
Ears, abnormal	188	Mitral regurgitation	23
Cerumen	102	Tricuspid regurgitation	1
Tubo Tympanic catarrh	33	Mitral stenosis	1
Chronic suppuration	2	Aortic regurgitation	1
Aural Polyp	1	Blood pressure above 130....	88
Eyes—		Joint—	
Hypermetropia	144	Ankylosis	1
Simple hyperopic astigmatism....	132	Tuberculosis	1
Compound hyperopic astigmatism	112	Ganglion	1
Myopia	53	Hallux valgus	2
Simple myopic astigmatism	80	Larynx, abnormal	7
Compound myopic astigmatism....	74	Chronic pharyngitis	5
Mixed astigmatism	41	Adenoids—	
Strabismus	3	Large	1
Presbyopia	4	Small	1
Esophoria	2	Lungs, abnormal	8

MEDICAL EXAMINATION OF INTRANTS, 1914-15—Continued

WOMEN

Lymph Nodes, enlarged	288	Acne—	
Cervical	169	Back	416
Axillary	66	Chest	198
Inguinal	53	Face	173
Menstrual disorders—		Teeth—	
Menses—		Good	468
Irregular	147	Fair	317
Scanty	43	Poor	222
Profuse	63	Neglected	7
Pain—		False	3
Severe	224	Throat, abnormal	90
Slight	170	Tonsils—	
Leucorrhoea	281	Absent	27
Nose—		Buried	2
Crusts	4	Projecting	10
Rhinitis—		Pathological	51
Chronic catarrhal	60	Thyroids, abnormal	201
Turgescient	3	Enlarged	180
Septum, spur	112	Exophthalmic goiter	4
Septum, deviations	53	Hyperthyroidism	12
Chronic hypertrophy	3	Hypothyroidism	5
Pollinosis	1	Vaccination scar absent and no	
Middle turbinate	3	history of small-pox—	
Left inferior turbinate	4	Previously unvaccinated	69
Polypus	1	History of vaccination but no	
Perforated septum	1	scar	96
Nutrition—		Vertebral column—	
Thin	272	Lordosis	15
Average	643	Kyphosis	22
Obese	102	Scoliosis	42
Skin, abnormal	787		

HISTORY OF DISEASES PREVIOUS TO ENTERING COLLEGE

Abscess, breast	1	Endocarditis	1
Abscess, neck	1	Facial paralysis	1
Amygdalitis	350	Frozen feet	1
Anaemia	3	Gastric trouble	1
Appendicitis	55	Gonorrhea	1
Asthma	8	Haemorrhoids	2
Brain fever	2	Hay fever	4
Bronchitis	15	Headache	5
Chicken pox	674	Heart trouble	5
Chorea	8	Hernia	1
Constipation	20	Hookworm	1
Curvature, spine	1	Indigestion	5
Diphtheria	78	Infantile paralysis	2
Dysentery	1	Influenza	5
Eczema	1	Intestinal fermentation	2
Erysipelas	2	Iritis	1

MEDICAL EXAMINATION OF INTRANTS, 1914-15—*Continued*

WOMEN

HISTORY OF DISEASES PREVIOUS TO ENTERING COLLEGE—(*Continued*)

Jaundice	3	Pulmonary Tuberculosis	1
Kidney trouble	3	Quinsy	3
Laryngitis	2	Rheumatism	89
Liver trouble	3	Scarlet fever	207
Lumbago	1	Sciatica	1
Lung fever	1	Shingles	1
Malaria	111	Smallpox	43
Measles	1033	Smallpox vaccination	41
Miscarriage	2	Spinal meningitis	5
Mumps	585	Stomach trouble	3
Nephritis	2	Synovitis	2
Neuralgia	6	Tuberculosis	1
Neuritis	1	Tuberculosis, joints	1
Neurasthenia	71	Typhoid fever	105
Otitis Media	100	Typhoid vaccination	4
Paralysis	1	Variloid	2
Pityriasis rosea	1	Whooping cough	732
Pleurisy	50	Uterine prolapse	1
Pneumonia	102	Uterine fibroid tumor	1
Ptomaine poisoning	1		

HISTORY OF OPERATIONS PREVIOUS TO ENTERING COLLEGE

Abdominal abscess	1	Kidney, operated on	1
Adenoidectomy	68	Knee, operated on	3
Adhesions	1	Leg, operated on	1
Appendectomy	41	Mastoid	7
Arm—		Mouth, operated on	1
Infection of	1	Naevus	1
Growth operated on	1	Nose—	
Back—		Deflected Septum	5
Abscess	1	Operated on	11
Operated on	1	Spur	1
Bladder, operated on	1	Turbinate	9
Bowels, operated on	1	Neck—	
Cheek, operated on	1	Glands removed	12
Coccyx, operated on	2	Operated on	2
Currettement, dilation and	7	Ovarotomy	3
Cyst, ovarian	2	Palate clipped	2
Eye, operated on	12	Pelvis, operated on	1
Ear, operated on	3	Teeth, knocked out	1
Finger—		Throat, growth	1
Amputated	2	Thumb, operated on	1
Operated on	2	Toe, operated on	1
Foot, operated on	2	Tonsillectomy	99
Goitre	2	Tumor	3
Herniotomy	2	Tumor fibroid	1
Hand, operated on	2	Uterus, operated on	7
Hip, operated on	1	Weeping sinew	1

MEDICAL EXAMINATION OF INTRANTS, 1914-15—*Continued*

WOMEN

HISTORY OF INJURIES PREVIOUS TO ENTERING COLLEGE

Ankle—		Leg—	
Dislocated	1	Fractured	6
Fractured	3	Injured	5
Injured	1	Sprained	1
Sprained	5	Lip, lacerated	1
Arm—		Lung, aspired	2
Fractured	16	Nose—	
Strained	1	Fractured	6
Dislocated	1	Injured	2
Back, injured	9	Rib—	
Coccyx, injured	3	Fractured	2
Collar bone, fractured	9	Injured	1
Concussion of the brain	2	Shoulder—	
Elbow—		Fractured	3
Dislocated	1	Injured	2
Fractured	6	Side—	
Finger, fractured	3	Right, paralyzed	1
Foot, injured	8	Injured	1
Hand, burn	1	Skull, fractured	2
Head, injured	4	Spine—	
Heel, injured	1	Dislocated	1
Hernia	1	Injured	3
Hip—		Fractured	1
Dislocated	1	Uterus, laceration	3
Injured	2	Wrist—	
Jaw, injured	1	Dislocated	1
Knee—		Fractured	12
Dislocated	5	Lacerated	1
Injured	8		

INFIRMARY REPORT, 1914-1915

MEN AND WOMEN

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
I. GENERAL DISEASES:						
(International Classification)						
1. Typhoid fever .....	.....	.....	.....	2	1	3
Anti-typhoid inoculation	71	52	123	.....	.....	.....
4. Malaria	14	2	16	9	2	11
6. Measles	7	1	8	18	2	20
7. Scarlet fever	2	.....	2	2	.....	2
8. Whooping cough .....	.....	1	1	.....	1	1
9. Diphtheria .....	.....	.....	.....	1	1	2
Diphtheria carrier	2	.....	2	3	.....	3
10. Influenza .....	.....	2	2	.....	.....	.....
19. Other epidemic diseases—						
Chicken-pox	3	2	5	9	1	10
German measles .....	.....	1	1	.....	.....	.....
Mumps .....	.....	1	1	.....	1	1
Vaccination—						
Vaccinia	172	161	333	5	5	10
Vaccinoid	36	36	72	.....	.....	.....
Reaction of immunity	13	19	32	.....	.....	.....
28. Tuberculosis of lungs	5	7	12	9	3	12
34. Tuberculosis of other organs—						
Tubercular adenitis	1	2	3	.....	2	2
Tubercular hip .....	.....	1	1	.....	1	1
Tubercular knee .....	.....	1	1	.....	.....	.....
Tubercular skin .....	.....	1	1	.....	.....	.....
36. Curvature of the Spine—						
Scoliosis .....	.....	1	1	.....	.....	.....
37. Syphilis	2	.....	2	2	.....	2
38. Gonococcus infection	9	1	10	2	.....	2
46. Other tumors—						
Cyst—						
Dermoid .....	.....	.....	.....	1	.....	1
Ear	3	1	4	.....	1	1
Eyelid	1	2	3	.....	.....	.....
Foot .....	.....	2	2	.....	.....	.....
Lip .....	.....	3	3	.....	.....	.....
Neck	2	.....	2	.....	.....	.....
Thigh	1	.....	1	.....	.....	.....
Wrist .....	.....	1	1	.....	.....	.....
Retention	10	.....	10	.....	.....	.....
Sebaceous	10	1	11	.....	.....	.....
Lipoma .....	.....	1	1	.....	.....	.....
Lipoma, removal of .....	.....	1	1	.....	.....	.....
Papilloma	3	.....	3	.....	.....	.....
47. Acute Articular—						
Rheumatism	2	2	4	1	2	3
51. Exophthalmic goitre .....	.....	6	6	.....	2	2

INFIRMARY REPORT, 1914-15—*Continued*

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
54. Anaemia .....	.....	17	17	.....	2	2
55. Other general diseases—						
Purpura .....	.....	1	1	1	.....	1
II. DISEASES OF THE NERVOUS SYSTEM:						
63. Other diseases of the spinal cord—						
Poliomyelitis, chronic	1	.....	1	.....	.....	.....
66. Paralysis without specified cause—						
Paralysis of leg .....	.....	1	1	.....	.....	.....
68. Other diseases of mental alienation						
Dementia praecox	1	.....	1	.....	.....	.....
Melancholia .....	.....	.....	.....	.....	1	1
Nostalgia	1	.....	1	.....	.....	.....
69. Epilepsy .....	.....	.....	.....	.....	1	1
73. Neuralgia and Neuritis—						
Concussion of central nervous system .....	.....	1	1	.....	.....	.....
Hysteria .....	.....	2	2	.....	.....	.....
Neuralgia	5	18	23	1	1	2
Neuritis	1	6	7	.....	.....	.....
74. Other diseases of the nervous system						
Neurasthenia	12	52	64	2	4	6
Neurotomy	1	.....	1	.....	.....	.....
Oedema	1	.....	1	.....	.....	.....
Syncope	1	4	5	.....	1	1
Vertigo .....	.....	5	5	1	.....	1
75. Diseases of the Eyes and their Annexa—						
(a) Conjunctivitis—						
Acute	81	38	119	8	.....	8
Chronic	12	.....	12	.....	.....	.....
Phlyctenular	1	1	2	.....	.....	.....
(c) Astigmatism—						
Simple hyperopic	38	19	57	.....	.....	.....
Compound hyperopic	61	28	89	.....	.....	.....
Simple myopic	22	15	37	.....	.....	.....
Compound myopic	34	29	63	.....	.....	.....
Mixed astigmatism	12	9	21	.....	.....	.....
Asthenopia	1	.....	1	.....	.....	.....
Blepharitis	17	16	33	.....	.....	.....
Chalazion, operation for	1	.....	1	.....	.....	.....
Congenital cyst of conjunctiva, operation for	1	.....	1	.....	.....	.....
Emmetropia	7	3	10	.....	.....	.....
Esophoria	1	4	5	.....	.....	.....
Episcleritis .....	.....	1	1	.....	.....	.....
Exophoria	5	7	12	.....	.....	.....
Foreign body	20	8	28	.....	.....	.....
Hordeolum	26	16	42	1	.....	1
Hyperopia	29	25	54	.....	.....	.....

INFIRMARY REPORT, 1914-15—*Continued*

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
Iridocyclitis .....	.....	1	1	1	.....	1
Keratitis	3	.....	3	4	.....	4
Lacrymocyclitis	1	.....	1	.....	.....	.....
Leucoma adherens	2	.....	2	.....	.....	.....
Myopia	5	7	12	.....	.....	.....
Optical iridectomy	1	.....	1	1	.....	1
Presbyopia	2	4	6	.....	.....	.....
Scleritis, specific	1	.....	1	1	.....	1
Subconjunctival Haemorrhage..	3	.....	3	.....	.....	.....
Uveitis .....	.....	.....	.....	1	.....	1
76. Diseases of the ears—						
Cerumen, accumulation of	72	58	130	.....	.....	.....
Deafness	1	.....	1	.....	.....	.....
Eustachian salpingitis .....	.....	3	3	.....	1	1
Foreign body	1	.....	1	.....	.....	.....
Haematoma	1	.....	1	1	.....	1
Myringitis	12	9	21	.....	.....	.....
Otitis media, acute	18	5	23	6	.....	6
Otitis media, chronic	3	2	5	.....	.....	.....
Rupture, ear drum	3	.....	3	1	.....	1
III. DISEASES OF THE CIRCULATORY SYSTEM:						
78. Acute Endocarditis .....	.....	3	3	.....	1	1
79. Organic diseases of the heart—						
(a) Valvular diseases, chronic cardiac	8	6	14	6	.....	6
(c) Arrhythmia, cardiac	1	1	2	.....	1	1
Hypertrophy of heart .....	.....	1	1	.....	.....	.....
Tachycardia	2	1	3	2	.....	2
Transportation of heart ....	.....	1	1	.....	.....	.....
80. Angina Pectoris .....	.....	1	1	.....	.....	.....
81. Diseases of the Arteries—						
Aneurysia	1	.....	1	.....	.....	.....
83. Diseases of the veins—						
Haemorrhoids	12	8	20	.....	.....	.....
Haemorrhoids, operation for.....	.....	.....	.....	1	1	2
Varicocele	4	.....	4	.....	.....	.....
Varicocele, operation for .....	.....	.....	.....	3	.....	3
84. Diseases of the lymphatic system—						
Angio-neurotic oedema .....	.....	1	1	.....	.....	.....
Lymphadenitis	4	3	7	9	.....	9
Lymphangitis	4	.....	4	1	.....	1
85. Haemorrhage—						
Epistaxis	12	4	16	2	.....	2
IV. DISEASES OF THE RESPIRATORY SYSTEM:						
86. Diseases of the nasal fossae—						
Adenoids	1	.....	1	.....	.....	.....
Adenoids, operation for .....	.....	.....	.....	.....	1	1
Catarrh, chronic	4	1	5	.....	.....	.....

INFIRMARY REPORT, 1914-15—*Continued*

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
Deviated septum	2	.....	2	.....	.....	.....
Deviated septum, operation for	4	.....	4	5	.....	5
Deflected septum	2	.....	2	.....	.....	.....
Nasal adhesions, operation for .....	.....	1	1	.....	.....	.....
Ozaena	2	.....	2	.....	.....	.....
Pollinosis	2	2	4	.....	.....	.....
Polypi, operation for	2	.....	2	1	.....	1
Rhinitis, acute	1186	717	1903	26	2	28
Rhinitis, chronic	27	15	42	.....	.....	.....
Septum spur	2	1	3	.....	.....	.....
Septum spur, operation for.....	3	1	4	1	.....	1
Turbineotomy	5	.....	5	2	.....	2
Tumor, nasal, operation for.....	1	.....	1	.....	.....	.....
Ulcer, nose	5	.....	5	.....	.....	.....
87. Diseases of the larynx—						
Laryngitis	54	66	120	.....	3	3
88. Diseases of the thyroid body—						
Adenitis	18	11	29	1	2	3
Hyperthyroidism	2	23	25	1	6	7
Myxoedema	1	.....	1	1	.....	1
89. Acute Bronchitis—						
Bronchitis, acute	17	13	30	19	7	26
Tracheitis	92	57	149	31	11	42
90. Chronic bronchitis—						
Bronchitis, chronic	4	1	5	3	.....	3
91. Bronchopneumonia	1	1	2	3	5	8
92. Pneumonia, lobar .....	.....	.....	.....	2	.....	2
93. Pleurisy—						
Pleurisy, acute fibrinous	8	8	16	5	4	9
Pleurisy, suppurative .....	.....	.....	.....	1	.....	1
96. Asthma	7	4	11	4	.....	4
98. Other diseases of the respiratory system—						
Hay fever	2	2	4	.....	.....	.....
V. DISEASES OF THE DIGESTIVE SYSTEM:						
99. Diseases of the mouth and An-						
nexa—						
(a) Diseases of the teeth and						
gums—						
Abscess, alveolar	13	1	14	4	1	5
Caries	28	9	37	1	1	2
Gingivitis	4	2	6	.....	.....	.....
Pvorrhoea alveolaris	5	2	7	1	.....	1
(b) Other diseases of the mouth						
and annexa—						
Stomatitis	18	20	38	1	.....	1
Ulcers	5	1	6	.....	.....	.....
100. Diseases of the pharynx—						
Abscess, tonsillar	4	.....	4	5	2	7
Amygdalolith, removed .....	.....	2	2	.....	.....	.....

INFIRMARY REPORT, 1914-15—*Continued*

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
Amygdalitis, acute	277	188	465	44	14	58
Amygdalitis, chronic	3	4	7	.....	.....	.....
Amygdalitis, operation for .....	.....	.....	.....	19	7	26
Elongation of uvula, operation for	1	.....	1	.....	.....	.....
Foreign body	1	.....	1	.....	.....	.....
Hypertrophy of tonsil	4	2	6	.....	.....	.....
Pharyngitis, acute	643	416	1059	100	19	119
Pharyngitis, chronic	6	23	29	.....	.....	.....
Ulcer of tonsil .....	.....	1	1	.....	.....	.....
Vincent's Angina	5	.....	5	3	1	4
102. Ulcers of the stomach	1	.....	1	1	.....	1
103. Other diseases of the stomach—						
Fermentation, gastric .....	.....	9	9	2	.....	2
Gastritis, acute	12	3	15	3	.....	3
Gastritis, chronic	2	.....	2	.....	.....	.....
Gastroptosis .....	.....	1	1	.....	.....	.....
Hyperchlorhydria	2	1	3	1	.....	1
Nervous dyspepsia .....	.....	2	2	.....	.....	.....
105. Diarrhoea and enteritis—						
Colitis .....	.....	4	4	.....	4	4
Duodenal ulcer	2	.....	2	3	.....	3
Enteritis	50	11	61	27	6	33
Fermentation, intestinal	21	26	47	1	5	6
Gastro-duodenitis	16	78	94	2	4	6
Gastro-enteritis	26	2	28	2	.....	2
107. Intestinal parasites—						
Trichiniasis .....	.....	.....	.....	1	.....	1
108. Appendicitis, acute	13	18	31	12	20	32
Appendicitis, chronic	8	2	10	1	1	2
Appendicitis, operation for .....	.....	.....	.....	6	10	16
109. Hernias—						
Inguinal hernia	7	.....	7	.....	.....	.....
Inguinal hernia, operation for .....	.....	.....	.....	4	1	5
110. Diseases of the intestines—						
(a) Fistula in ano	1	.....	1	.....	.....	.....
Fistula in ano, operation for .....	.....	.....	.....	1	1	2
(b) Autointoxication	24	.....	24	.....	.....	.....
Constipation	154	99	253	9	.....	9
111. Acute yellow atrophy of the liver—						
Jaundice	4	.....	4	3	.....	3
114. Biliary calculi—						
Cholelithiasis	1	.....	1	.....	.....	.....
115. Other diseases of the liver—						
Cholangitis, acute .....	.....	.....	.....	.....	1	1
117. Simple peritonitis—						
Peritoneal adhesions .....	.....	3	3	.....	.....	.....

INFIRMARY REPORT, 1914-15—*Continued*

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
VI. NON VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ANNEXA:						
119. Acute nephritis	1	.....	1	2	.....	2
122. Other diseases of the kidneys—						
Nephroptosis .....	.....	2	2	.....	.....	.....
Renal colic	2	.....	2	.....	.....	.....
124. Diseases of the bladder—						
Cystitis	1	.....	1	.....	.....	.....
125. Diseases of the urethra—						
Permeum	1	.....	1	.....	.....	.....
Urethritis	6	.....	6	.....	.....	.....
126. Diseases of the prostate—						
Prostatitis	1	.....	1	.....	.....	.....
127. Non-veneral diseases of the male genito-organs—						
Balanoposthitis	3	.....	3	.....	.....	.....
Circumcision	5	.....	5	8	.....	8
Epididymitis	1	.....	1	2	.....	2
Hydrocele	1	.....	1	1	.....	1
Orchitis	1	.....	1	.....	.....	.....
Seminal emissions	3	.....	3	.....	.....	.....
Spermatorrhoea	2	.....	2	.....	.....	.....
128. Uterine hæmorrhage—						
Menorrhage .....	.....	3	3	.....	.....	.....
Metrorrhage .....	.....	4	4	.....	.....	.....
130. Other diseases of the uterus—						
(a) Endometritis .....	.....	1	1	.....	.....	.....
(b) Amenorrhoea .....	.....	33	33	.....	.....	.....
Anteverted uterus .....	.....	.....	.....	.....	1	1
Cautery .....	.....	.....	.....	.....	1	1
Curretage .....	.....	.....	.....	.....	1	1
Dilation, cervix .....	.....	.....	.....	.....	1	1
Dysmenorrhoea .....	.....	100	100	.....	.....	.....
Erosion of cervix .....	.....	3	3	.....	.....	.....
Infantile uterus .....	.....	1	1	.....	.....	.....
Leucorrhoea .....	.....	12	12	.....	.....	.....
Retroversion of uterus .....	.....	3	3	.....	.....	.....
131. Cyst and other tumors of the ovary .....	.....	.....	.....	.....	1	1
132. Salpingitis and other diseases of the female genital organs—						
Ovaritis .....	.....	1	1	.....	1	1
Salpingitis .....	.....	1	1	.....	2	2
Vulvitis .....	.....	1	1	.....	1	1
133. Non-puerperal diseases of the breast—						
Mastitis, chronic	2	2

VII. DISEASES OF THE SKIN:

142. Gangrene—

Raynaud's disease	3	3
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143. Furuncle—

Abdomen	2	1	3
Arm	19	4	23	2	2
Axilla	6	8	14	1	1	2
Back	5	5
Breast	1	1
Buttock	14	4	18
Chest	3	1	4	.....	1	1
Ear	16	4	20	.....	.....	.....
Eyelid .....	.....	1	1	.....	.....	.....
Face	44	23	67	4	4	8
Foot .....	.....	.....	.....	2	.....	2
Hand	6	1	7	.....	.....	.....
Head	12	.....	12	.....	.....	.....
Leg	8	.....	8	1	.....	1
Neck	120	3	123	2	.....	2
Nose	1	11	12	.....	.....	.....
Penis	1	.....	1	.....	.....	.....
Thigh	12	4	16	.....	.....	.....
Wrist .....	.....	2	2	.....	1	1
Miscellaneous	5	9	14	.....	.....	.....
Carbuncle	4	.....	4	3	.....	3

144. Acute abscess—

Arm	3	.....	3	1	.....	1
Axilla	1	1	2	.....	.....	.....
Breast .....	.....	.....	.....	.....	1	1
Buttock	1	.....	1	.....	.....	.....
Chest	1	.....	1	.....	.....	.....
Ear	1	.....	1	1	.....	1
Face	4	.....	4	1	.....	1
Finger .....	.....	3	3	.....	.....	.....
Foot	7	4	11	1	.....	1
Groin	1	.....	1	2	.....	2
Gum .....	.....	2	2	.....	.....	.....
Hand	10	.....	10	.....	.....	.....
Ischio-rectal .....	.....	1	1	.....	1	1
Neck	4	.....	4	1	.....	1
Neck, operation for .....	.....	.....	.....	1	.....	1
Rectum	1	.....	1	.....	.....	.....

Cellulitis of—

Ankle .....	.....	1	1	.....	.....	.....
Arm	10	1	11	3	.....	3
Eve .....	.....	.....	.....	1	.....	1
Face	3	5	8	.....	.....	.....
Finger	25	18	43	4	1	5
Foot	46	15	61	15	3	18
Gum	16	7	23	2	.....	2
Hand	15	2	17	6	.....	6
Jaw .....	.....	1	1	.....	.....	.....
Leg	2	.....	2	6	.....	6
Mouth	1	.....	1	.....	.....	.....

INFIRMARY REPORT, 1914-15—*Continued*

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
Neck	1	.....	1	1	.....	1
Nose	1	2	3	.....	.....	.....
Thigh	1	.....	1	.....	.....	.....
145. Other diseases of the skin—						
(a) Trichophytosis	114	6	120	1	.....	1
(b) Scabies	26	7	33	.....	.....	.....
(c) Other diseases of the skin—						
Acne	46	67	113	.....	.....	.....
Alopecia areata	2	4	6	.....	.....	.....
Callositas	8	.....	8	.....	.....	.....
Chilblains	2	21	23	.....	.....	.....
Clavus	31	31	62	.....	.....	.....
Comedo	2	4	6	.....	.....	.....
Dermatitis medicamentosa..	.....	1	1	.....	.....	.....
Dermatitis venenata	162	168	330	14	12	26
Eczema	106	59	165	5	.....	5
Erythema multiforme .....	.....	2	2	.....	.....	.....
Erythema nodosum	1	5	6	2	2	4
Fibroma	1	2	3	.....	.....	.....
Fissure	7	1	8	.....	.....	.....
Folliculitis	1	.....	1	.....	.....	.....
Herpes	31	17	48	.....	.....	.....
Hyperidrosis	12	4	16	.....	.....	.....
Ichthyosis .....	.....	1	1	.....	.....	.....
Impetigo contagiosa	53	16	69	3	1	4
Intertrigo .....	.....	4	4	.....	.....	.....
Parasitic diseases—						
Phtheiriasis	9	.....	9	.....	.....	.....
Pityriasis rosea	4	8	12	.....	.....	.....
Pruritis ani	2	1	3	.....	.....	.....
Psoriasis	6	1	7	.....	.....	.....
Seborrhoea	7	16	23	.....	.....	.....
Ulcer	2	.....	2	1	.....	1
Urticaria	30	25	55	.....	1	1
Warts—						
Arm	2	3	5	.....	.....	.....
Face	1	.....	1	.....	.....	.....
Finger .....	.....	3	3	.....	.....	.....
Foot	73	12	85	1	.....	1
Hand	55	13	68	.....	.....	.....
Head	3	.....	3	.....	.....	.....
Neck	1	1	2	.....	.....	.....
Nose	1	.....	1	.....	.....	.....
Wrist	1	1	2	.....	.....	.....
Miscellaneous	2	4	6	.....	.....	.....
Zoster	6	.....	6	.....	.....	.....
Nails—						
Ingrowing nail	25	9	34	1	1	2
Onychia, operation for .....	.....	.....	.....	1	.....	1
Paronychia	11	11	22	.....	.....	.....
Ingrowing hair	3	.....	3	.....	.....	.....

INFIRMARY REPORT, 1914-15—Continued

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
VIII. DISEASES OF THE BONES AND OF THE ORGANS OF LOCOMOTION:						
146. Diseases of the bones—						
Antrum sinusitis	2	.....	2	1	.....	1
Congenital shortening of leg .....	.....	1	1	.....	.....	.....
Exostosis	1	.....	1	.....	.....	.....
Frontal sinusitis	17	2	19	5	.....	5
Osteomyelitis .....	.....	1	1	1	.....	1
Periostitis, chronic	2	1	3	.....	.....	.....
147. Diseases of the joints—						
Arthritis	6	4	10	.....	.....	.....
Synovitis	11	2	13	3	.....	3
149. Other diseases of the organs of Locomotion—						
Bursitis	5	4	9	.....	.....	.....
Ganglion .....	.....	5	5	.....	.....	.....
Hallux valgus	3	7	10	.....	.....	.....
Myositis	25	26	51	7	.....	7
Pes carvus .....	.....	1	1	.....	.....	.....
Pes planus	44	82	126	.....	.....	.....
Rheumatism, muscular	5	4	9	.....	1	1
Tenontosynovitis	21	.....	21	.....	.....	.....
Torticollis	5	8	13	.....	.....	.....
Weak feet .....	.....	5	5	.....	.....	.....
150. Congenital malformations—						
Amputation, finger	1	.....	1	.....	.....	.....
Hypospadias	2	.....	2	.....	.....	.....
Naevus	5	2	7	.....	.....	.....
164. Poisoning by food	1	6	7	1	1	2
165. Other acute poisonings—						
Arsenic poisoning .....	.....	1	1	.....	1	1
Belladonna poisoning .....	.....	1	1	.....	.....	.....
Insect bite	11	23	34	1	.....	1
Serum reaction .....	.....	1	1	.....	.....	.....
167. Burns—						
Arms	9	8	17	.....	.....	.....
Back	1	2	3	.....	.....	.....
Chest	1	.....	1	.....	.....	.....
Eye .....	.....	1	1	.....	1	1
Face	6	6	12	.....	1	1
Finger	11	10	21	.....	.....	.....
Foot	1	.....	1	.....	.....	.....
Hand	10	10	20	1	1	2
Leg .....	.....	2	2	.....	.....	.....
Mouth	3	5	8	.....	.....	.....
Penis	3	.....	3	.....	.....	.....
Scrotum	1	.....	1	.....	.....	.....
Shoulder	1	.....	1	.....	.....	.....
Thigh	1	.....	1	.....	.....	.....
Wrist .....	.....	2	2	.....	.....	.....

INFIRMARY REPORT, 1914-15—*Continued*

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
Miscellaneous	2	.....	2	.....	.....	.....
Sunburn	3	.....	3	.....	.....	.....
171. Traumatism by cutting or piercing instruments—						
Arm	4	2	6	.....	.....	.....
Buttock	1	.....	1	.....	.....	.....
Ear .....	.....	.....	.....	1	.....	1
Face	11	.....	11	.....	.....	.....
Finger	60	19	79	.....	.....	.....
Foot	11	1	12	1	.....	1
Gum	2	.....	2	1	.....	1
Hand	17	7	24	.....	.....	.....
Head	21	2	23	1	.....	1
Leg	4	1	5	.....	.....	.....
Penis	1	.....	1	.....	.....	.....
Shoulder	1	.....	1	.....	.....	.....
Thigh	2	.....	2	.....	.....	.....
Wrist	3	.....	3	.....	.....	.....
175. Traumatism by crushing—						
Arm .....	.....	1	1	.....	.....	.....
176. Injuries by animals—						
Cat bite	1	.....	1	.....	.....	.....
Dog bite	4	1	5	.....	.....	.....
Snake bite	1	.....	1	.....	.....	.....
177. (a) Over-exertion—						
Heat prostration .....	.....	1	1	.....	.....	.....
178. Excessive cold—						
Frost-bite of external ear	1	.....	1	.....	.....	.....
185. (a) Dislocation—						
Back	1	2	3	.....	1	1
Coccyx .....	.....	1	1	.....	.....	.....
Finger	2	1	3	.....	.....	.....
Elbow .....	.....	.....	.....	1	.....	1
Jaw .....	.....	2	2	.....	.....	.....
Shoulder	3	.....	3	2	.....	2
Toe	1	.....	1	.....	.....	.....
Ulna	1	.....	1	.....	.....	.....
(b) Sprains—						
Ankle	74	37	111	7	3	10
Back	5	2	7	1	.....	1
Elbow	2	.....	2	.....	.....	.....
Finger	28	7	35	.....	.....	.....
Foot	34	16	50	1	.....	1
Hand	2	.....	2	.....	.....	.....
Knee	17	8	25	2	.....	2
Leg	1	.....	1	.....	.....	.....
Shoulder	4	3	7	.....	.....	.....
Wrist	20	5	25	.....	.....	.....

(c) Fractures—

Ankle	1	1	2	1	.....	1
Arm	4	1	5	1	1	2
Clavicle	1	.....	1	.....	.....	.....
Finger	1	2	3	.....	.....	.....
Foot	11	3	14	2	.....	2
Jaw	1	1	2	1	.....	1
Knee .....	.....	.....	.....	1	.....	1
Leg	6	1	7	3	1	4
Nose	4	.....	4	.....	.....	.....
Rib	2	1	3	.....	.....	.....
Shoulder	1	.....	1	.....	.....	.....
Skull	1	.....	1	1	.....	1
Wrist	1	.....	1	.....	.....	.....

186. Other external violence—

I. Organs and special structures—

Strain of muscle of

Abdomen	6	1	7	1	.....	1
Ankle	5	3	8	.....	.....	.....
Arm	3	4	7	.....	.....	.....
Back	33	16	49	3	1	4
Chest	15	1	16	1	.....	1
Finger .....	.....	1	1	.....	.....	.....
Foot	11	16	27	.....	.....	.....
Hand .....	.....	1	1	.....	.....	.....
Head	1	.....	1	.....	.....	.....
Jaw	1	.....	1	.....	.....	.....
Knee	4	7	11	.....	.....	.....
Leg	6	.....	6	.....	.....	.....
Neck	1	.....	1	.....	.....	.....
Shoulder	7	.....	7	.....	.....	.....
Thigh	5	1	6	1	.....	1
Wrist	1	3	4	.....	.....	.....
Miscellaneous	4	4	8	.....	.....	.....
Concussion of brain	1	.....	1	.....	.....	.....

II. Regions—

Contusion and abrasion of

Ankle	11	4	15	.....	.....	.....
Arm	27	2	29	.....	.....	.....
Back	3	1	4	2	.....	2
Buttock	3	1	4	.....	.....	.....
Chest	6	.....	6	.....	.....	.....
Coccyx	2	2	4	.....	.....	.....
Ear	3	.....	3	.....	.....	.....
Elbow	22	7	29	.....	.....	.....
Eye	11	.....	11	.....	.....	.....
Face	6	3	9	1	1	2
Finger	62	18	80	1	.....	1
Foot	165	44	209	4	1	5
Hand	54	17	71	.....	.....	.....
Head	8	1	9	3	.....	3
Jaw	1	.....	1	.....	.....	.....
Knee	72	19	91	6	.....	6
Leg	27	4	31	.....	.....	.....
Lip	7	2	9	.....	.....	.....

INFIRMARY REPORT, 1914-15—*Continued*

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
Nose	10	2	12	.....	.....	.....
Rib	2	.....	2	.....	.....	.....
Shoulder	4	1	5	.....	.....	.....
Testicle	1	.....	1	.....	.....	.....
Thigh	7	.....	7	1	.....	1
Wrist	7	1	8	.....	.....	.....
Miscellaneous	5	2	7	.....	.....	.....
Foreign body—						
Arm	1	.....	1	.....	.....	.....
Buttock	2	.....	2	.....	.....	.....
Face	1	.....	1	.....	.....	.....
Finger	5	9	14	.....	.....	.....
Foot	1	1	2	.....	.....	.....
Knee (arthrotomy) .....	.....	.....	.....	1	.....	1
Mouth	1	.....	1	.....	.....	.....
Nail	1	.....	1	.....	.....	.....

IX. ILL-DEFINED DISEASES:

189. Unclassified or ill-defined—

(a) Diseases not specified—

Headache	43	51	94	1	3	4
Insomnia	2	13	15	1	.....	1
Unknown .....	.....	.....	.....	9	.....	9

(b) Apprehension	2	.....	2	.....	.....	.....
No diagnosis	5	7	12	1	.....	1
No disease	12	24	36	3	2	5
Normal	24	.....	24	1	...	1
Operation wound	3	.....	3	2	.....	2

STATISTICAL ADDENDA

COMPILED BY THE RECORDER OF THE FACULTIES

TABLE 1.—Summaries of officers of instruction in the colleges and
Berkeley, 1894–1915.

Year	Professors		Assoc. Prof.	Asst. Prof.	Lectrs.	Instrs.	Dept. Assts.*	Teaching Fellows	Totals
	Acting Prof.	Emer. Prof.							
1894–95	21	....	9	12	0	24	41	7	114
1895–96	21	....	10	13	0	26	37	6	113
1896–97	22	....	10	18	0	21	28	8	107
1897–98	25	....	8	25	2	35	26	6	127
1898–99	30	1	14	19	1	40	36	0	141
1899–1900	29	2	15	20	2	40	40	5	153
1900–01	31	2	14	19	2	41	45	2	156
1901–02	29	1	13	22	5	56	43	0	169
1902–03	34	1	12	26	14	64	48	4	203
1903–04	36	2	14	42	14	51	60	3	222
1904–05	39	1	16	48	16	45	86	3	254
1905–06	37	3	18	51	14	55	82	3	263
1906–07	40	3	19	57	14	46	94	3	276
1907–08	44	3	22	59	12	47	104	4	295
1908–09	50	3	28	62	14	53	100	6	316
1909–10	55	8	23	70	14	52	118	7	347
1910–11	47	10	29	64	14	57	75	7	303
1911–12	48	9	42	57	18	81	110	9	374
1912–13	55	8	38	61	17	77	121	16	393
1913–14	72	6	33	82	16	87	114	14	424
1914–15	73	10	43	95	20	83	169	16	509

* Including readers.

TABLE 2.—Officers of instruction in the colleges and department
away from Berkeley.

Year	L. O.*	Art	Law	Medicine		P. G. Medicine	Dentistry	Pharm.	Univ. Farm
				S. F.	L. A.				
1897–98	10	6	6	49	....	51	41	10	....
1898–99	11	6	5	68	....	58	43	7	....
1899–1900	11	8	5	70	....	82	45	10	....
1900–01	12	8	5	68	....	94	45	9	....
1901–02	11	8	5	81	....	101	50	11	....
1902–03	12	9	5	50	....	109	46	10	....
1903–04	13	10	6	62	....	28	24	9	....
1904–05	13	9	6	55	....	23	25	8	....
1905–06	9	9	6	66	....	....	22	8	....
1906–07	7	....	6	52	....	....	34	9	....
1907–08	7	11	6	54	....	....	34	8	....
1908–09	8	7	6	54	....	....	31	8	....
1909–10	7	7	6	58	59	....	26	8	....
1910–11	16	9	6	55	61	....	32	8	10
1911–12	16	10	6	55	61	....	31	7	14
1912–13	17	12	6	53	58	....	24	9	....
1913–14	12	8	8	70	58	....	25	9	12
1914–15	14	8	8	80	145	....	25	8	23

* 1894–95, 7; 1895–96, 7.

NOTE.—The upper figures on the left of each group refer to men, the lower to women; the figures on the right side are the totals. The following table does not include students in the following courses of instruction: University Extension, San Francisco Institute of Art, The University Farm School, Short Courses in Agriculture, Correspondence Courses, Farmers' Institutes, Wilmersing School of Industrial Arts.

In Berkeley:		1905-06	1906-07	1907-08	1908-09	1909-10	1910-1911	1911-12	1912-13	1913-14	1914-15
<i>Graduate Students:</i>	COLLEGES.										
	.....	155 196 351	148 133 281	151 173 324	186 217 403	214 211 425	258 243 501	311 267 578	344 304 648	404 363 767	459 373 832
<i>Undergraduates:</i>	Letters.....	65 129 194	40 105 145	39 93 132	39 98 137	35 116 151	53 113 172	64 104 168	69 107 176	71 105 176	79 114 193
	Social Sciences.....	290 764 1054	286 763 1049	311 790 1101	321 732 1053	341 768 1109	365 786 1151	342 736 1138	395 911 1306	462 1035 1497	555 1236 1871
	Natural Sciences.....	88 103 191	106 115 221	124 96 220	177 104 281	230 170 400	349 260 609	451 408 862	566 511 1077	727 595 1322	746 591 1337
	Commerce.....	149 5 154	150 4 154	177 0 177	186 4 190	222 2 224	258 5 263	263 5 268	282 5 287	282 14 296	298 13 311
	Agriculture.....	115 8 123	117 10 127	128 4 132	145 7 152	191 6 197	270 10 280	350 22 372	429 26 455	521 28 552	532 21 553
	Mechanics.....	267 0 267	264 0 264	260 0 260	293 0 293	301 0 301	294 0 294	316 0 316	318 0 318	366 0 366	361 0 361
	Mining.....	271 0 271	274 0 274	278 0 278	261 0 261	243 0 243	209 0 209	160 0 160	132 0 132	122 0 122	102 0 102
	Civil Engineering.....	211 0 211	219 0 219	250 0 250	246 0 246	232 0 232	236 0 236	234 0 234	224 0 224	261 0 261	234 0 234
	Chemistry.....	48 6 54	37 5 42	34 5 39	47 3 50	44 2 46	55 2 57	56 0 56	60 0 60	62 3 65	69 5 74
	At Large*.....	.....	.....	6 8 14	14 22 36	14 21 35	38 30 68	29 36 65	23 37 60	44 46 90	3 7 10
	Medicine.....	.....	9 1 10	6 1 7	.....	10 5 15	27 3 30	27 1 28	52 7 59	39 7 46	42 7 49
	Total Under-graduates }.....	1504 1015 2519	1502 1003 2505	1613 997 2610	1729 970 2699	1863 1090 2953	2122 1179 3301	2266 1336 3602	2527 1567 4094	2916 1787 4703	3041 2054 5095
Total in the Colleges at Berkeley (deducting for duplicates)		1647 1192 2839	1643 1118 2761	1760 1156 2916	1907 1176 3083	2067 1285 3352	2343 1403 3746	2539 1573 4112	2821 1846 4667	3285 2064 5349	3454 2394 5848
Percentage of men, departments at Berkeley.....		58.01	59.51	60.36	61.85	61.66	62.55	61.74	60.44	61.41	59.06

* In the above table, 1910-11 to 1913-14 inclusive, students at large are summarized separately, and are also distributed among the several colleges.

TABLE 3—(Continued).

	1905-06	1906-07	1907-08	1908-09	1909-10	1910-11	1911-12	1912-13	1913-14	1914-15
Lick Observatory, Mt. Hamilton:										
	3	1	3	3	1	1	2	0	0	2
	1	1	0	0	1	1	0	0	0	0
In San Francisco:										
Hastings College of the Law.....	74	73	69	98	116	104	117	100	88	71
	2	1	0	2	1	1	2	0	0	2
*College of Medicine.....	64	35	25	28	39	18	16	17	24	37
	9	5	1	7	10	0	2	3	7	6
College of Dentistry.....	71	64	69	53	57	64	77	90	93	109
	3	1	0	0	0	0	1	0	0	2
California College of Pharmacy.....	76	43	42	62	67	78	79	95	113	91
	5	4	3	5	5	7	1	3	4	4
Total in the Colleges } in San Francisco }	285	215	205	241	279	264	289	302	318	310
	19	11	4	14	16	8	6	6	11	14
	304	226	209	255	295	272	295	308	329	324
In Los Angeles:										
					37	28	18	7	3	
					7	6	1	0	0	
							19	7	3	
Total in the University (deducting for duplicates)	1932	1858	1965	2127	2352	2631	2842	3128	3606	3764
	1211	1129	1160	1184	1301	1417	1579	1852	2074	2408
	3143	2987	3125	3311	3653	4048	4421	4980	5680	6172
Summer Session	339	330	258	317	381	460	562	676	783	982
	459	377	264	344	438	591	1419	1599	1580	2197
	798	707	522	661	819	1051	1981	2275	2363	3179
Total	2271	2188	2923	2444	2733	3091	3404	3804	4389	4746
	1670	1506	1424	1528	1739	2008	2998	3451	3654	4605
	3941	3694	3647	3972	4472	5099	6402	7255	8043	9351
Deduct for duplicate registrations in Summer Session and in Fall session following	268	204	154	109	189	245	293	220	299	324
								183	218	289
								403	517	613
Grand Total	3673	3490	3493	3863	4283	4854	6109	3584	4010	4422
								3268	3436	4316
								6852	7526	8738

* Up to and including 1905-06 figures for College of Medicine include four classes; beginning 1906-07 only third and fourth years are given.

TABLE 4.—Showing proportion (per cent) of the undergraduates, including special students, in each of the colleges at Berkeley.

	1903-04	1904-05	1905-06	1906-07	1907-08	1908-09	1909-10	1910-11	1911-12	1912-13	1913-14	1914-15
Letters	9.54	8.70	7.70	5.70	5.05	5.07	5.11	5.21	4.66	4.30	3.74	3.80
Social Sciences	40.24	41.06	41.84	41.87	42.14	39.01	37.52	34.86	31.60	31.90	31.83	36.72
Natural Sciences	7.89	7.65	7.58	8.82	8.42	10.41	13.54	18.45	23.93	26.31	28.11	26.24
Commerce	4.89	5.06	5.71	6.14	6.78	7.03	7.50	7.96	7.41	7.91	6.30	6.11
Agriculture	4.19	4.29	4.88	5.97	5.05	5.63	6.67	8.46	10.33	11.11	11.74	10.85
Mechanics	9.99	10.77	10.59	10.53	9.96	10.85	10.19	8.96	8.82	7.77	7.78	7.09
Mining	12.04	11.54	10.75	10.93	10.65	9.67	8.22	6.33	4.44	3.22	2.59	2.00
Civil Engineering	6.82	8.38	8.37	8.74	9.58	9.11	7.11	7.14	6.19	5.17	5.55	4.59
Chemistry	4.40	2.51	2.11	1.67	1.49	1.85	1.55	1.72	1.55	1.46	1.38	1.15
Medicine .....	.....	.....	.....	.30	.26	.55	.50	.09	.08	1.44	.98	.96
At large .....	.....	.....	.....	.....	.53	1.33	1.18	[2.06]	* [1.80]	* [1.46]	[1.91]	.19

* In the above table, 1910-11 to 1913-14 inclusive, students at large are summarized separately, and are also distributed among the several colleges, according to expressed collegiate preference.

TABLE 5.—Summary of students registered to November 1 (approximately), 1908, 1909, 1910, 1911, 1912, 1913, 1914, and 1915.

A. The colleges at Berkeley:								
	Nov. 1, 1908	Nov. 1, 1909	Nov. 1, 1910	Nov. 1, 1911	Nov. 1, 1912	Nov. 1, 1913	Nov. 1, 1914	Nov. 1, 1915
(1) Graduate students in the colleges of letters and sciences (including engineering)	328	337	416	460	533	577	661	782
(2) Undergraduate students in the colleges of letters and sciences (including engineering)	2538	2745	3033	3308	3753	4325	4629	4832
Total	2866	3082	3449	3768	4286	4902	5290	5614
B. The colleges in San Francisco:								
(1) Law	95	112	102	116	97	79	72	71
(2) Medicine (3rd and 4th years only) *	8	11	16	18	19	31	45	58
(3) Dentistry	56	57	59	75	89	90	112	141
(4) Pharmacy	69	78	85	78	87	114	95	93
Total	228	258	262	287	292	314	324	363
* Students in medicine, 1st and 2nd years, included in colleges at Berkeley:								
Graduate	8	13	10	16	24	42	28	27
Undergraduate	10	20	21	35	58	46	55	31
Total	18	33	31	51	82	88	83	58

TABLE 5.—(Continued).

C. The Los Angeles Department of Medicine

(in 1909-10, 2nd, 3rd, and 4th years; in
1910-11, 3rd and 4th years)*

Total students in all colleges

Nov. 1, 1908	Nov. 1, 1909	Nov. 1, 1910	Nov. 1, 1911	Nov. 1, 1912	Nov. 1, 1913	Nov. 1, 1914	Nov. 1, 1915
.....	44	34	19	7	.....	.....	.....
3094	3384	3745	4074	4585	5216	5614	5977

D. The summer session

(‘08) 661

(‘09) 819

(‘10) 1051

(‘11) 1981

(‘12) 2275

(‘13) 2363

(‘14) 3179

(‘15) 5364

Gross total

3755

4203

4796

6055

6860

7579

8793

11,341

Deduction for all duplicates

139

240

287

331

480

543

613

786

Net total

3616

3963

4509

5724

6380

7036

8180

10,555

* See footnote on page 413 for students in first and second years, College of Medicine.

NOTE.—The foregoing table does not include students in the following courses of instruction: University Extension, San Francisco Institute of Art, The University Farm School, Short Courses in Agriculture, Correspondence Courses, Farmers' Institutes, Wilmerding School of Industrial Arts.

TABLE 6A.—Graduate students at Berkeley, classified by colleges, October 1, 1915, with comparable figures for 1914.

NOTE.—In the columns showing the number of students, the upper left-hand figures refer to men, the lower to women; the figures on the right side are totals.

	1914		1915	
Letters	40			
	49	89		
Social Sciences	88		228	
	178	266	330	558
Natural Sciences	67			
	56	123		
Commerce	8		3	
	0	8	2	5
Agriculture	23		50	
	3	26	5	55
Mechanics	4		5	
	0	4	0	5
Mining	1		2	
	0	1	0	2
Civil Engineering	7		6	
	0	7	0	6
Chemistry	29		25	
	2	31	1	26
Medicine (1st and 2nd years)	19		22	
	9	28	5	27
Jurisprudence	60		80	
	2	62	6	86
Architecture	14		8	
	2	16	0	8
Total	360		429	
	301	661	349	778

TABLE 7.—Degrees conferred, 1906–15.

DEGREE	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915†
LL.D.	0 0 0	0 0 0	0 0 0	1 0 1	9 0 9	0 0 0	5 0 5	5 0 5	4 0 4	4 0 4
J.D.	2 1 3	3 0 3	6 0 6	7 0 7	7 1 8	8 1 9	10 1 11	11 1 12	15 1 16	17 2 19
Ph.D.	6 0 6	4 0 4	4 0 4	10 0 10	4 1 5	5 1 6	13 2 15	9 2 11	11 2 13	18 4 22
M.A.	7 7 14	5 4 9	9 3 12	7 10 17	7 11 18	5 12 17	4 20 24	6 16 22	12 26 38	31 39 70
M.L.	1 9 10	8 3 11	9 13 22	9 11 20	7 16 23	5 16 21	9 15 24	6 14 20	13 28 41	......
M.S.	10 0 10	9 4 13	2 3 5	12 10 22	20 5 25	27 8 35	26 9 35	43 13 56	41 18 59	18 5 20
Grad. in Arch.									2 0 2	3 0 3
Grad. in Publ. H.									0 0 0	4 1 5
Number of higher degrees	26 17 43	26 11 37	30 19 49	46 31 77	54 34 88	50 38 88	67 47 114	80 46 126	98 75 173	95 51 140
A.B.	18 41 59	10 22 32	14 29 43	10 17 27	8 31 39	7 26 33	11 25 36	23 24 47	11 24 35	151 241 390
B.L.	44 131 175	44 90 134	33 128 161	44 111 155	49 108 157	41 113 154	42 114 156	54 122 176	111 171 282	......
Ph.B.	1 1 2									
(Nat. Sci.	17 19 36	7 13 20	13 34 47	19 16 35	34 20 54	37 34 71	70 61 131	80 65 145	56 64 120	5 11 10
Commerce	24 0 24	16 0 16	18 0 18	14 0 14	22 1 23	22 1 23	21 0 21	32 0 32	27 0 27	31 3 3
Agriculture	13 0 13	9 1 10	13 0 13	21 1 22	21 3 24	22 0 22	40 0 40	45 3 48	67 4 71	53 4 5
B.S. Mechanics	21 0 21	36 0 36	42 0 42	26 0 26	45 0 45	26 0 26	36 0 36	30 0 30	47 0 47	40 0 4
Mining	41 0 41	43 0 43	35 0 35	26 0 26	27 0 27	44 0 44	26 0 26	25 0 25	25 0 25	12 0 1
Civil Eng.	33 0 33	31 0 31	20 0 20	34 0 34	27 0 27	24 0 24	31 0 31	31 0 31	30 0 30	28 0 2
Chemistry	8 2 10	5 0 5	6 2 8	3 1 4	5 1 6	9 0 9	7 0 7	11 0 11	7 0 7	12 1 1
Number of bachelor's degrees {	220 194 414	201 126 327	194 193 387	197 146 343	238 164 402	232 174 406	284 200 484	331 214 545	381 263 644	332 260 59
LL.B.	15 1 16	28 0 28	14 0 14	14 0 14	23 0 23	19 0 19	28 1 29	22 0 22	30 0 30	18 0 1
M.D.	17 2 19	21 4 25	15 1 16	6 1 7	7 4 11	5 1 6	10 1 11	11 1 12	11 3 14	12 1 1
D.D.S.	22 2 24	18 0 18	20 0 20	15 0 15	16 0 16	10 0 10	15 0 15	20 0 20	23 0 23	19 0 1
*Ph.G.	24 2 26	24 2 26	10 1 11	18 1 19	27 2 29	30 2 32	31 0 31	28 2 30	41 2 43	34 1 3
Pharm.B.	3 0 3	0 1 1	1 0 1	0 0 0	1 0 1	3 1 4	2 0 2	0 0 0	1 0 1	1 0 1
Number professional degrees {	81 7 88	91 7 98	60 2 62	53 2 55	74 6 80	67 4 71	86 2 88	81 3 84	106 5 111	84 2 8

* Ph.G. discontinued and replaced by Ph.C. between 1905 and 1911 inclusive. Beginning 1915, Ph.C. was given for completion of four-year course.

† Figures for 1915 cannot be completed before December 18, 1915.

TABLE 8.—Number of accredited schools each year since 1885.

	1885-86	1886-87	1887-88	1888-89	1889-90	1890-91	1891-92	1892-93	1893-94	1894-95
Number public high schools accredited	6	6	6	7	11	17	24	30	39	43
Number private secondary schools accredited..	0	0	1	2	2	6	7	10	9	14
Total number schools accredited	6	6	7	9	13	23	31	40	48	57
	1895-96	1896-97	1897-98	1898-99	1899-1900	1900-01	1901-02	1902-03	1903-04	1904-05
Number public high schools accredited	52	61	66	76	87	93	93	100	104	99
Number private secondary schools accredited..	15	15	16	15	23	23	22	18	20	21
Total number schools accredited	67	76	82	91	110	116	115	118	124	120
	1905-06	1906-07	1907-08	1908-09	1909-10	1910-11	1911-12	1912-13	1913-14	1914-15
Number public high schools accredited	106	114	122	140	147	155	172	181	192	189
Number private secondary schools accredited..	23	23	25	30	31	31	31	32	34	36
Total number schools accredited	129	137	147	170	178	186	203	213	226	225

NOTE.—Schools authorized to recommend though not regularly accredited: 1909-10, 34; 1910-11, 26; 1911-12, 35; 1912-13, 40; 1913-14, 45; 1914-15, 53.

TABLE 9.—Enrollment of graduate students.

	1904-05	1905-06	1906-07	1907-08	1908-09	1909-10	1910-11	1911-12	1912-13	1913-14	1914-15
Total number of graduate students	243	351	281	324	403	425	501	578	648	707	832
Number from University of California	130	240	159	177	236	214	258	307	342	371	424
Percentage of graduate students from University of California	53.4	68.3	56.4	54.6	58.5	50.3	51.4	53.1	52.8	52.3	51.0
Percentage of graduate students from other institutions	46.6	31.7	43.6	45.4	41.4	49.6	48.5	46.9	47.2	47.7	49.0
Total number of colleges and universities represented	71	79	67	81	90	98	120	122	152	146	168
*Number of graduate students taking higher degrees (masters' and doctors' degrees not including juris doctor)....	28	35	34	49	61	66	79	99	103	149	149
Percentage of graduate students taking higher degrees (masters' and doctors' degrees not including juris doctor)....	11.5	9.9	12.1	15.1	15.1	15.5	15.7	17.1	15.9	21.1	17.9
Number of graduate students receiving Ph.D.	4	6	5	4	10	5	6	15	10	14	22
Number of graduate students receiving the bachelor's degree	20	14	8	3	7	8	7	7	10	7	3
Number of graduate students taking LL.B. in the academic departments ..	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Number of graduate students taking juris doctor in the academic departments ..	.....	3	3	6	7	6	8	13	11	16	20

* In 1914-15 includes degrees of Graduate in Architecture and Graduate in Public Health.

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The following abbreviations are used: agr. (agriculture), agrl. (agricultural), Am. (American), anthrop. (anthropology), assn. (association), bldg. (building), Cal. (California), cfd. (compared), co. (county or company), coll. (college), dept. (department), exam. (examination), ext. (extension), govt. (government), hist. (history), introd. (introduction), lab. (laboratory), libr. (library), L. O. (Lick Observatory), L. A. (Los Angeles), mfg. (manufacturing), N. S. G. W. (Native Sons of the Golden West), no. (number), prof. (professor), pub. (publish or published), publ. (publications), repd. (represented), S. F. (San Francisco), U. C. (University of California), U. S. (United States), univ. (university).

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UNIVERSITY OF CALIFORNIA BULLETIN

A SERIES IN THE ADMINISTRATIVE BULLETINS
OF THE UNIVERSITY OF CALIFORNIA

**Entered July 1, 1911, at the Post Office at Berkeley, California,
as second-class matter, under the Act of Congress
of July 16, 1894**

**Issued monthly from July to March, and twice a month from
April to June**

These Bulletins include:

The Circular of Information, Academic Departments.

The Annual Announcement of the Summer Session.

**The Announcement of the Medical School, Colleges of Dentistry,
Law, and Pharmacy.**

The President's Annual Report.

The Prospectus of the College of Agriculture.

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University of California Bulletin

THIRD SERIES. Vol. X, No. 6

ANNUAL REPORT

OF THE

PRESIDENT OF THE UNIVERSITY

1915-1916

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PUBLISHED BY THE
UNIVERSITY OF CALIFORNIA
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Administrative Bulletins of the University of California

1916-17. No. 10

1. Announcement of Courses, 1916-17. July.
2. Circular of Information. August.
3. Announcement of the Department of History, 1916-17. August.
4. Announcement of Courses in Forestry, 1916-17. September.
5. Announcement of the School of Education, 1916-17. September.
6. Courses of Study, University Farm School, 1916-17. September.
7. Catalogue of Officers and Students. September.
8. Directory of Graduates, 1864-1916. October.
9. Register, 1915-16. November.
10. President's Report, 1915-16. December.

UNIVERSITY OF CALIFORNIA

Annual Report of the President of
the University on Behalf of the
Regents to His Excellency the
Governor of the State of California

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REPORT OF THE PRESIDENT OF THE UNIVERSITY

UNIVERSITY OF CALIFORNIA,

BERKELEY, December 13, 1916.

*To His Excellency Hiram W. Johnson,
Governor of the State of California.*

SIR: I have the honor of submitting herewith my Annual Report on the condition of the University. The number of different persons enrolled as students in some one of the schools or colleges maintained by the University reached for the year **Enrollment** July 1, 1915, to June 30, 1916, a total of 12,529. In this figure are included the undergraduates in the colleges at Berkeley, 5185; the graduate students in the colleges at Berkeley, 1014; the students in the professional schools in San Francisco (Medicine, Dentistry, Law, Pharmacy, Art), 779; in other outlying departments, 32; students in the Wilmerding School, 446; students at the Farm School at Davis, 314; students enrolled in the short courses in agriculture, 181; and finally the enrollment of the Summer Session after the deduction of all names appearing in one of the above mentioned schools, 4578. The courses in University Extension are *not* included. These would add the following: recipients of regular instruction in classes specially created and maintained by the Division of University Extension, 3013; recipients of instruction in agriculture through the correspondence courses in the Department of Agriculture, 10,595; recipients of instruction by correspondence in other subjects than agriculture, 2214; gross total of those attending lectures maintained by the Division of University Extension, 63,900; gross total of those enrolled under the Bureau of Public Discussion, 45,000; gross total of those met and instructed or advised by County Advisors in agriculture, 81,750 (by class at farms to which they were requested to come, 9450; by attendance at meetings held by Farm Advisors, 72,300). To these should

be added, if we are seeking the exact number of people reached by the real University Extension work rather than that formally organized as such, the various courses of lectures given by university professors but not organized under university departments, such as those given by professors in the Department of Education, and those given every year by Professor Stephens at the Mechanics Institute in San Francisco with large attendance. Altogether it is safe and well within the truth to say that out of this gross total of over 200,000 more than 150,000 different people within the State are personally and immediately reached by some one or more of the various educational devices of the University.

Turning back now from the University in its wider and laxer influence to the University proper as based on fixed gradations and prerequisites and adjusted to the highest recognized standards, and leaving out of the reckoning the Summer Session, all forms of University Extension, and all forms of secondary schools

or schools below the high school graduation, we obtain as a figure properly representing the attendance at the University of California for the year 1915-16 the net total of 6601. This figure within the last seven years has practically doubled, and during the last year shows an increase of 7 per cent.

That the growth of the University proper has been well distributed among its various colleges the following table showing percentage of growth or decline during the three years 1913-16 will indicate:

Chemistry	+60%	Agriculture	+19%
Graduate Division..	+56%	Medicine	+19%
Dentistry	+54%	Pharmacy	— 2%
Letters and Science	+42%	Engineering	— 6%
Commerce	+19%	Law (Hastings)....	—32%

The only colleges which have grown relatively to the whole body of students of the University, that is, which have outpaced the rest, are the Graduate Division, the College of Letters and Science, the College of Chemistry, and the College of Dentistry.

**Significant
Facts as to
Registration**

The percentage of male students in the colleges at Berkeley has declined from 60 per cent in 1912-13 to 56 per cent in 1915-16. A change so decided as this ought to bear its explanation upon its face; I am not sure, however, that it does. I call attention, however, to the following facts: The percentage of male students in the College of Letters and Science has shifted during the same period from 40 per cent to 39 per cent, while in the Graduate Division the percentage of male students has shifted from 46 per cent in 1907-08 to 53 per cent in 1915-16. The increase in the proportion of women seems therefore to be restricted to the College of Letters and Science, and within this college it appears to be due to the increasing number of women in the School of Education. The increase, at the same time, of male students in the Graduate Division is highly significant.

**Expenditures
and Income
for 1915-16**

The amount spent during the year ending June 30, 1916, for education and research was \$988,674.06 (this was exclusive of such matters as the University Hospital of the Medical School; the work of the Department of Agriculture, \$528,759.07; expenditures on University Extension, the Los Angeles Medical Department, the Summer Session, and those two great research undertakings of the University, the Lick Observatory and the Scripps Institution for Biological Research). The expenditure on buildings and improvements was \$1,001,213.78; on administration and operation (including such great items as lighting and heating, the care of grounds and buildings, the Infirmary, which was supported wholly by student fees at the rate of \$6 per annum, the gymnasium, and publications) was \$368,651.46; the disbursements from the class funds and for scholarships, fellowships, and prizes was \$45,792.07, while there was an expenditure of \$174,145.40, which represents merely the outgo in conducting various business enterprises of the Department of Agriculture and the University Farm, such as farm work of the University Farm itself, the maintenance of the dairy on the University campus, the manufacture and distribution of serum to immunize swine against hog cholera, and the inspection of commercial fertilizers, these

expenditures being offset by receipts from these various activities for the economic or agricultural welfare of the State. The total expenditure for the year ending June 30, 1916, including all these items of building operations, the maintenance of hospitals and gymnasiums, the economic activities of the Department of Agriculture, and agricultural expenditures offset by agricultural income, was \$3,455,074.95.

Sources of University Income The income of the University available for immediate use was \$3,394,902.49, this figure not including additions to endowment during the year, which amounted to \$96,085.52. The sources of this income were as follows:

The United States, for the Agricultural Experiment Station, the work of the Farm Advisors, and other forms of agricultural extension work, and aid in general to the teaching of agriculture and mechanic arts	\$101,037.45
The State of California, for current expenses of the University	\$1,182,812.53
The State of California, for maintenance of the College of Agriculture and its various activities in experimentation and in agricultural extension	355,000.00
The State of California, for building operations at the University	336,033.16
The State of California, for the purchase of land and erection of buildings for various agricultural purposes, equipment and maintenance of the Los Angeles Medical Department, support of the Scripps Institution for Biological Research, University Extension, etc.	60,637.30
	<hr/> 1,934,482.91
Student fees, including gymnasium and Infirmary fees, Summer Session fees, laboratory deposits subject to return, etc.	257,160.9
Clinical fees from hospitals and the Dental Infirmary	71,015.9
Receipts from sale of agricultural produce, etc.	189,729.0
Income on endowment created by the United States, the State of California, and private donors	241,242.3
	<hr/>
<i>Carried forward</i>	\$2,794,668.7

UNIVERSITY OF CALIFORNIA

9

Brought forward \$2,794,668.75

Gifts:

For current use \$90,193.97
 For buildings and improvement 470,039.77
 For endowments 96,085.52

Income of the Kearney Vineyard 656,319.26
 40,000.00

\$3,490,988.01

The present assets of the University are approximately seventeen and a half millions, of which the principal items are real estate and buildings, equipment, \$2,622,358.34; and investments,

Assets of the University

\$9,136,428.51;
 \$5,125,566.04.

Recent years have shown a very rapid relative as well as absolute increase in the appropriations for the support of medical instruction and research.

Increased Appropriation for Medical Instruction

For the year 1916-17 there has been provided:

For salaries in Medicine, including Anatomy, Pathology, and Physiology \$86,050.00
 For the budgets of departments 51,150.00
 For the support of the University Hospital, aside from the estimated receipt of \$35,000 from patients 99,000.00
 For the Los Angeles Medical Department 10,000.00
 Total for the Medical School proper \$246,200.00
 For the George Williams Hooper Foundation for Medical Research 50,000.00
 Final total for medical instruction and research \$296,200.00

This expenditure is to be met from the following sources:

From the Hooper Fund \$50,000.00
 Income from other endowment funds 11,016.00
 Donation for immediate use 2,400.00
 From general university funds 232,784.00
 \$296,200.00

In December, 1911, the Regents adopted for the Medical School a completely reorganized plan involving a greatly increased expenditure. The total appropriations for the year 1912-13 in accordance with this plan were:

For salaries and departmental budgets	\$58,765.00
For maintenance of the Hospital	14,400.00
	<hr/>
	\$73,165.00

The comparable sum provided for the year 1916-17 was \$246,200. The provision from university funds has been, therefore, within four years more than trebled. The income from the Hooper Foundation is here not taken into account. The allotment of four years ago, with which the present-day allotment is compared, represented furthermore the provision which the Regents were making on the basis of a new and enlarged plan; in other words, since that plan was provided the amount allotted has been further trebled. And yet the legitimate demands of the Medical School have yet by no means been met. The chairs, for instance, of Medicine and Surgery are still maintained without salary, the incumbents of those chairs practically making a donation of their invaluable services. There is an

Needs of the Medical School immediate crying need for a dispensary and out-patient clinic and for a nurses' home. So soon as the new University Hospital is ready the central building of the Affiliated Colleges, now used as a hospital, will be available for the laboratories of the different medical departments. Eventually there must be provided also special laboratories for Anatomy and Pathology. The new Hospital now approaching completion will provide 215 beds. Most of these are as yet unendowed. They will constitute, therefore, when used for teaching purposes, a heavy and increased burden upon University funds. The Hospital as it now stands requires for its support a subsidy of \$99,000. The plain message of the fact is that the Medical School requires immediately \$500,000 for buildings and an increased income which shall raise the present provision of essentially a quarter of a million to one of \$400,000.

That amount of money not only can be now used without excess or extravagance but is actually a just and unescapable demand.

Support of Agriculture The other department which has received the greatest increase of support within the last four years is Agriculture. For the current year 1916-17 there has been appropriated to its use for salaries and budgets \$612,539, of which \$305,692 is for salaries. The corresponding figure for 1912-13, that is, four years ago, was \$360,607, of which \$128,528 was applied for salaries. The efficiency and public usefulness of the College of Agriculture has been so keenly and thankfully appreciated throughout the length and breadth of the State, especially since the decisive enlargement of the appropriation for agriculture four years ago, that the request of the Dean for very considerable further increases cannot be, and will not be, disregarded.

It must be remembered that these sums include all the expenses incident to the support of the various undertakings of the department at Berkeley, at Riverside, and at Davis, as well as its state-wide work such as the University Extension in Agriculture and the support of the County Advisors.

Over Forty Per Cent of University Funds now Devoted to Medicine and Agriculture The total amount available for the maintenance of academic work in these two departments of Medicine and Agriculture for the year 1916-17 is in round numbers \$900,000 (or to be exact, \$908,739): the comparable amount for all the other departments of instruction in the University is in round numbers \$1,100,000 (or to be exact, \$1,091,348). These two departments therefore occupy 45 per cent of the funds available in the entire University for instruction and research. Or, if the \$300,000 expended in the whole University for administration be taken into account, and one-sixth of this be apportioned to these two departments, they will be found to occupy 41 per cent of the entire available funds of the University aside from building operations. This figure of 41 per cent is a very significant one and represents as near an approximation to the actual fact as can usually be obtained from statistical figures. It gives a trustworthy insight into the first fundamental subdivision of the

Apportionment of Income University expenditures. The following table of available income and fundamental subdivision of expenditures gives in round numbers a really accurate statement:

AVAILABLE INCOME	PRIMARY SUBDIVISION
\$2,300,000.00	Administration \$300,000.00
	Medicine 300,000.00
	Agriculture 600,000.00
	All others 1,100,000.00
	<hr/>
	\$2,300,000.00

The New Printing Office During the year there has been constructed from University general funds the much needed printing building at a cost of \$27,500. It meets the greatly increased demand for the printing of books and bulletins, and is particularly needed in view of the proposed series of publications which will signalize the fiftieth anniversary (1918) of the University's life. Eight thousand dollars has been added to the equipment of the building, including a new press and an additional linotype.

Home Economics Building Also from general funds, and at a cost of \$15,000, including \$5000 for equipment, has been erected this year a temporary building to house the Department of Home Economics with its two subjects: Household Art (textiles, costume, house furnishings) and Household Science (food, dietetics, nutrition, etc.).

Buildings Constructed from the \$1,800,000 Bond Issue The five buildings in permanent construction provided through the initiative by the generous people of the State are all now well on their way toward completion. The amount provided by the people was \$1,800,000. To this will be added the \$52,000 realized from premium on the bonds and the \$90,000 left standing in the Doe Building Fund, and the resulting total of \$1,942,000 will not be exceeded. It is, on the contrary, expected that the total will cover the furnishing and equipment of the buildings.

The New Class-room Building The first to be completed and occupied will be the new class-room building, whose name I recognize with abashed thankfulness and pride. In its combined beauty and adaptation to use it will be the inferior of no

academic building in the land. It is situated south of the new Doe Library and northeast of the Sather Gate, at what will be when the Student Union shall have found its place south of the gate, and the new gymnasium have risen just outside the gate to the southeast, the very center of student life. The cost of the building will be \$700,000, and of its furniture \$27,000. Practically it replaces North Hall, which after a patient service of forty-three and a half years passes on into history fairly exhausted. In its departure we trust it will hand over to the keepership of its successor the accumulated treasure of student-day sentiment and affection.

Gain in Classroom and Office Space The new building contains an auditorium seating 1050 persons and in all sixty-two classrooms, including the auditorium, seating a total of 4899 persons, together with forty-seven professors' offices. The following table shows the gain that will be made in seating space through the substitution of the new building for North Hall:

	Class-rooms	Seats	Area of class-rooms in sq. ft.	Offices	Floor area of offices
North Hall	39	1,312	19,317	11	2,262
Wheeler Hall	62	4,899	59,199	47	8,251

This means an enlargement by a multiple of three to four, and we may fairly expect that at least for four or five years the pressure for classroom and lecture-room space will be abated.

Offices for Professors and Instructors The provision of professors' offices will, we hope, introduce a new feature into our community life and a new spirit and possibility into the relations of the teaching force to the life of the University. Heretofore many of the teaching staff, especially the younger instructors, after attending their classes, having no place of shelter which they could call their own, have wandered back to their homes and sundered themselves thereby unwittingly or unwillingly from the atmosphere of the place, losing thereby and being lost. The experience of the School of Jurisprudence since the provision of teachers' offices in Boalt Hall is strongly in point. The whole spirit of the school has been elevated by the continuous presence

of the professors in their offices. The new buildings taken altogether will provide by the beginning of the next academic year 116 such rooms; Wheeler Hall providing 47, the University Library 22, Hilgard Hall 47. Each of these can properly accommodate at least two professors. Many of the instructing staff, it is to be hoped, will find it advantageous to make their offices, being as they are in proximity to the Library, their regular workrooms and studies. Wheeler Hall will be ready for occupancy at the beginning of the next semester, January 15, 1917; the new wing of the University Library April 1, the new Agriculture Building (Hilgard Hall) August 15, and the new wing of the Chemical Laboratory August 15.

Completion of the Library, Hilgard Hall, New Chemistry Building and Power Plant The new wing of the Library, including book stacks, will cost \$525,000 and its furnishings \$22,000; the Agriculture Building (of reinforced concrete) \$350,000, and its furnishings and equipment \$25,000; the Chemistry Building (of reinforced concrete) and equipment \$220,000; the new unit of the Power Plant, necessitated by new space to be heated and lighted, \$70,000. The sums required in addition to the \$1,800,000 provided by the people of the State are realized by the surplus left standing in the Doe Building Fund with accumulated interest \$90,000, and the premium on the sale of the state bonds issued to meet the appropriation. This is shown in the following table:

EXPENDITURE		PROVISION	
Wheeler Hall and furnishings	\$727,000.00	Appropriation	\$1,800,000.00
University Library and furnishings	547,000.00	Premium on bonds....	52,000.00
Agriculture Building and equipment	375,000.00	Balance on building fund	90,000.00
Chemical Laboratory and equipment	220,000.00		
Power Plant	70,000.00		
Margin	3,000.00		
	<hr/>		<hr/>
	\$1,942,000.00		\$1,942,000.00

**Gain in
Library
Space**

The new addition to the University Library involves a floor area of 69,482 square feet, of which 58,292 represent working space. The old part had 98,986 square feet, of which 81,548 represent working space. The addition represents, therefore, about 71 per cent of increase in working floor space. The total book storage space of the completed building will give room for approximately a million and a quarter volumes. To the twenty-three seminar rooms in the older part twenty more will be added in the new, besides twenty-two professors' offices and increased office space for the Library staff.

**Buildings
Needed—
A Student
Union**

The need of further buildings which represent the general interests of the whole University is very definite and may be summarized in the order of relative need: (1) There can be no reason to doubt that the Student Union represents the greatest and most specifically determined need. We wish the building to stand just inside the Sather Gate to the west. It is to be the student club and will fill in the student life somewhat the place which the Faculty Club occupies in the faculty life. The students' instinct of demand for such a building has expressed itself out of our earlier period by the use of the North Hall steps, of Senior Bench, of the Co-operative Store, and of the other student rooms used for journalism and lunch room. The Student Union must be a glorified North Hall basement. It must be first of all a place where the students can find shelter between class exercises and at luncheon time. A certain proportion of the present use of the Library Reading Room has nothing to do with library books or journals, but chiefly with shelter. This is not as it should be. Those who go to the Library should go there to use books and journals. The proposed Student Union must house the Co-operative Store, which, now that North Hall is to be demolished, will be without ascertained shelter. It must provide a place for a proper restaurant and cafeteria, committee rooms for student organizations, for student publications, for debating societies, for student government, for reading room, for lounging rooms, and in general for student resort. (2) An auditorium. We must

**Need of an
Auditorium
Seating 5000**

have a place in which the University can assemble itself and become conscious of its own existence.

First of all, the University Meetings must be housed.

Our present system of student government rests ultimately upon the University Meetings—that is the way, at any rate, in which the present condition of government has been brought about. If we cannot have a place where all the students can be assembled at one time we shall sooner or later have to give up this system of government and find some other. The University of California without its fortnightly University Meeting would not be the same place. We have, furthermore, no place in which university exercises like those of Charter Day and Commencement can be held except the Greek Theatre. In case of inclement weather we are obliged to adjourn to the Gymnasium, which furnishes seating capacity for a scant 2300. The Gymnasium was not originally intended as an auditorium, and no gymnasium is directly and naturally suited to such use. It can only be used temporarily as an auditorium by the bringing in of chairs. We need an auditorium adjusted to the size of the University and filling in its life the same place that the auditorium of a California high school does. An auditorium is just as essential to the life of the University as auditoriums are in the case of the high schools. The seating capacity must exceed 5000. It must have an organ and be suited for musical concerts. It would be well if the building should include under the rising seats also a smaller concert room and a room for dramatic exercises as a laboratory of the department of dramatics. Such a building, if it could be made of reinforced concrete, could be built for

**A New
Gymnasium**

\$750,000. (3) A gymnasium. A gymnasium cannot ever be satisfactorily blended with an auditorium. It has its own work to do, and its work should not be continually interfered with, as is the case when our present gymnasium is used for concerts, entertainments, University Meetings, etc. Provision was made by the will of Mr. Ernest V. Cowell, an intensely loyal friend of this University, and one who was keenly alive to the needs of the student body, for the erection of a students' gymnasium. This bequest, it is hoped,

will be before long available. The place for the gymnasium seems evidently to be the lot recently purchased by the Regents just outside the Sather Gate, on the east side of Telegraph avenue.

Demand for a Larger Armory (4) An armory. The recent act of Congress providing for the establishment in universities of a Reserve Officers' Training Corps brings before us for immediate decision the question whether we shall establish at the University of California such a unit. It is hardly conceivable that we should decline to do it. If we accept we must furnish armory space double that now used by the Military Department. This is due to the need of space for the handling and storing of uniforms (these being provided by the United States Government) and for the storing and administration of other equipment; also for the offices of detailed officers. Under the act we should have detailed to service here three commissioned officers and six subordinate officers at the expense of the War Department. The War Department will also furnish uniforms and a certain remuneration for the student officers of the Cadet Regiment. The federal government is therefore offering to do quite its share. We ought to do ours. We are caught, however, in the unfavorable emergency of having at present practically no armory. The Military Department is tucked away in the basement of the westerly end of the Harmon Gymnasium. If we cannot provide an armory at once the only alternative will of course be to build out at the west of the Gymnasium an extension of the basement, yielding the needed floor space. This will cost, however, \$20,000, an amount which will be thrown away upon a temporary building which within three to five years must come down. The wiser thing would be to face the emergency now and deal with it courageously. A proper armory can be built out of permanent materials for \$200,000. It need not be made a building with floor space adapted to drills; we propose to have our military exercises held in the open air. It will be a building essentially for the storage of equipment with easy access and for offices. It should have its place at a point most accessible to the available space for military exercises. If the Regents should

Cost of an Adequate Armory

finally determine to use for military purposes and for athletics the open ground at the northwest of the campus in addition to the field now available west of California Hall, the natural place for the armory would be somewhere directly north of the eucalyptus grove.

**The Dormitory
Situation**

The need of dormitories has by no means decreased since my reference thereto in my last Annual Report. The fraternities and clubs are, after their sort, doing their best to provide social life and shelter for the students. The University in its official capacity has done very little to assist these agencies. It is a case of letting things take their course. It is undoubtedly the fact that as responsibility has been thrown more and more definitely upon these student organizations they have responded, and in their effort to make their club houses fulfill these responsibilities they have themselves been strengthened and bettered. It is a notable fact that by the consent and even desire of the great majority of the student organizations the University has during the past year made public the scholarship standing of the various organizations. The orderliness of the chapter and club houses has notably improved within recent years. It remains, however, that these houses have not as yet shown themselves able to offer anything like an ideal solution of the problem. In the first place, they are not economical; and it remains always the fact that however excellent the spirit of these organizations may be they are semi-exclusive in their character and do not open their doors to all who may wish to come. But in any case they fall short of being able to care for the great mass of the students who are in need of shelter and food and social life at moderate cost. We can house in dormitories today, if we had them, 1000* students. I believe it would be possible to provide five units of an ultimate dormitory plan,

* Statistics compiled a year ago by the Recorder and Dean Putnam show that only twenty-seven per cent of the men students were living in boarding houses—945 out of about 3500 men. Only one-third of these 945 were living in boarding houses which appear on the approved list. This approved list showed, however, accommodations for 996 men. Those who lived elsewhere than in houses on the approved list did so mostly because they wished to obtain cheaper accommodations. Dormitories seem to be of much more importance for the women than the men.

each unit involving 100 students. Based on the experience of the University of Chicago, the cost at \$1500 per student occupant would be \$750,000. It has been found possible at Chicago to make these dormitories pay an income of about 4 per cent net on the cost of the building. I doubt if we could count on more than 2 or 3 per cent. The main difficulty therefore would seem to be the finding of \$750,000 at 3 per cent.

**Professors'
Salaries**

I present on page 36 a table comparing the salaries of professors, associate professors, and as-

sistant professors of ten years ago with those of today. Our main effort regarding the salaries of the professors has been to bring these up as we could, and that was gradually, toward the normal \$4000. In 1906 there were only seven professors receiving \$4000 or more; at the present there are forty-one. A disproportionate part of this gain has fallen to the College of Agriculture. It is clear that as rapidly as possible a professor's salary should be brought to \$4000, and that notable distinction as teacher or discoverer should rapidly command a salary of \$5000. I think on the whole that the most advantageous appli-

**Assistant
and Associate
Professors
Need Larger
Salaries**

cation of new money might be made in improving the status of associate and assistant professors, particularly the latter. Men of this age generally have their families growing up and feel very strongly

the pressure of financial need. We must not be surprised if men who have had twelve years of experience in teaching and research since obtaining their doctor's degree, if their health and energy persist, should either deem themselves worthy of promotion or should face the problem of seeking some other profession than that of being inspirers of youth. Young instructors

**The Status
of the
Instructor**

whose salaries begin at \$1000 and are raised in accordance with our general rule each year for five years have a less urgent claim upon our attention,

provided it may be possible for us after they have held for three years an instructorship at \$1500 to advance them in case of satisfactory service to the position of assistant professor. A man who has before him the prospect of a permanent position and retiring pay at the end can well afford to enter upon an

instructorship with its initial salary of \$1000, and to spend five to eight years in accommodating himself to his profession.

Increase in the Cost of Living The chief reason for calling attention at this time to the needs of the teaching force is the enormously increased cost of living. I beg to call your attention herewith to a chart (on page 34) representing the recent increase in cost of living, a chart prepared at my request by Professor C. C. Plehn and Instructor F. R. Macaulay of the Department of Economics. It is noticeable in the chart that a new tendency toward an increase of prices, due apparently to the war, has within a year joined forces with a steadier enhancement of prices which has been going on for nearly twenty years. It is apparent that the man living on a salary is standing in quicksand, and that the value of his salary is continually oozing away from under his feet. It will be necessary for the coming year to make increases throughout a large portion of the entire salary roll. The general raising of salaries, however, is not a light matter to contemplate. An addition of \$250 to the salary of each of our associate and assistant professors and instructors would, for instance, involve the addition to fixed charges of \$65,250; and this capitalized at 5 per cent would require the addition of an endowment of \$1,305,000. Or, to put it in another way, an increase of salaries by only 5 per cent would require \$60,000, and yet we are told that the cost of living has increased by 20 per cent in the last two years. That portion of the increase which is due to the war we of course could not attempt to match, as we should be thereby meeting what is probably a temporary elevation with a permanent platform of fixed recurring charges,—and the granting of a bonus, as the Santa Fe Railroad has done, is probably out of the question. According to the chart, living increased 50 per cent in the decade 1906–16, and this under a “general trend” which is not likely to relent even in peace, being due to universal causes involving presumably the cheapening of gold and the growing scarcity of food. Moderation and fairness would, it seems to me, suggest the raising of salaries by 10 to 12½ per cent, which is less than the “general trend” increase

of the last five years; but this means one hundred and twenty to one hundred and fifty thousand dollars.

New Professorships It will also be necessary not only to increase salaries, but to create a number of new professorships. The following table shows the increase in the number of teaching positions during the last five years. Agriculture and all the departments of medicine, having enjoyed abnormal development are excluded from the consideration. The table shows that the number of full professors has increased by only 19 per cent in five years, while the number of students in the same colleges has increased by 60 per cent. As the University has grown, we evidently have not been keeping the teaching force in numerical relation to the number of students. We have appointed instructors bountifully, but have economized in professors. This cannot continue without weakening the character of our instruction. The tone of the University is largely determined by the personal influence of the maturer men of the faculty.

GROWTH OF THE ACADEMIC SENATE FROM JULY 1, 1911, TO JULY 1, 1916,
EXCLUDING AGRICULTURE AND MEDICINE

	1911	1916	Gain	% Gain
Professors (active)	42	50	8	19
Associate Professors	34	46	12	35.3
Assistant Professors	44	63	19	43.1
Lecturers.....	18	20	2	10
Instructors	42	71	29	69
	<hr/>	<hr/>	<hr/>	<hr/>
	180	250	70	38.8%
Student body (same colleges) increased from:				
	3740 to 6005	2265	60%	

**Needs of the
Extension
Division**

I call attention to the report of Dr. Howerth regarding the University Extension Division. The experience of this past year has convinced us beyond a doubt that there is all throughout the State a strong demand for instruction which will open the resources of the University to the wider population of the State. The appropriation for the

support of University Extension for this year was \$20,000. The University of Wisconsin spent on University Extension in the year 1914-15 \$239,110, only \$30,000 of which was derived from fees. The University of Minnesota, which only recently began the work of University Extension, expended upon it in 1914-15 \$89,350. It is only during the last two years that a special appropriation has been available for the division; up to that time it made its way as best it could. It is evidently the fate of our situation that we should develop this division slowly and gradually. The definiteness of our assurance regarding the needs of the work has now brought us to a point where there ought to be no hesitancy in increasing very positively the appropriation to the division.

**The College
of Agriculture**

The report of the College of Agriculture and Agricultural Experiment Station, as presented by Director Hunt, has been separately printed and is worthy of the attention of every one who desires to understand the work of this pre-eminently important branch of the University. I wish particularly to express my concurrence with the Director in his carefully prepared statement concerning the proper delimitation of the work and functions of the College of Agriculture. What he says regarding the College of Agriculture is true in substance of the entire University. It exists for the purpose of instruction and research. It should not assume responsibility for the execution of law; it is not part of its function to execute laws, and it should not be charged with the responsibility thereof. I approve most emphatically of the position of the Director when he says: "All members of the station staff should remain unbiased. They should not be placed in the attitude of an advocate nor have any interest in a decision, beyond stating the scientific truth. In this connection it is strongly urged that a law should be passed exempting members of the station staff from being called into court to give expert testimony in case of litigation between private interests." What is true of the College of Agriculture is here again true of the whole University. It is evident that professors who carry unavoidably with them the name of the

University should not be employed as expert witnesses to aid one side in a litigation. The creation of a Council of Agriculture, which is hereafter to be the governing body of the College of Agriculture, is an event of some significance. This Council is to consist of the President of the University and professors in the Department of Agriculture, together with one representative from each of the departments offering prescribed work in the College of Agriculture.

Publications During the past year the University Press issued 3578 pages of scientific publications, constituting eighty-four papers, in addition to ten Lick Observatory Bulletins. During the year, furthermore, over a million copies have been distributed throughout the State of various agricultural publications. There are now twenty-five different scientific series in course of publication. It is, of course, to be understood that these publications by the University itself are but a small proportion of the scientific writing done by members of the faculty. The semi-centennial of the establishment of the University is to be commemorated in 1918 by the issuance of the semi-centennial publications. Already thirty-nine titles have been accepted by the Editorial Committee for this series.

New Departments A number of new departments have been created during the past year. The Department of Physiology has been divided into two departments; one of Physiology, headed by Professor Samuel Steen Maxwell, and one of Biochemistry and Pharmacology, headed by Professor T. Brailsford Robertson. A new department of Preventive Medicine and Hygiene has been established under the leadership of Dr. Wilbur A. Sawyer, Secretary of the California State Board of Health, as Clinical Professor. The Department of Public Speaking has been set off as distinct from the Department of English, with Professor Martin C. Flaherty at its head. There has also been founded the Department of Home Economics with its two subdivisions Household Art and Household Science. The enrollment in its courses for the current semester was 245. The enrollment would be three or four times this number were it not that certain

prerequisites, such as chemistry, economics, etc., are insisted upon. Otherwise the department could not maintain itself as worthy of academic position.

**Department
of Mining**

While Professor Lawson retains the position of Dean of the College of Mining, Professor Frank H. Probert, newly appointed as Professor of Mining Practice, assumes the inner responsibility for the Department of Mining proper. He is already proceeding to revolutionize the equipment and methods of the department with the able assistance of Professor Weeks, also recently appointed, and is introducing a new vitality into the work of the department. Through the gifts of Mrs. Hearst, Mr. F. W. Bradley, and other friends, valuable additions have been made to the equipment of the department; the "Lawson Adit" is being driven into the Berkeley hills directly east of the Hearst Memorial Mining Building as a means of giving the mining students practical training in the actual processes of mine work and mine surveying.

**Physical
Education**

Physical exercise is now required twice a week for two years instead of four times a week for one year. The most important modification in the work of this department has been introduced by Professor Kleeberger whereby students may substitute for gymnasium drill the participation in free sports under instruction and fixed requirement of attendance. The records of the gymnasium show that on November first of this year out of 1443 students enrolled in the required courses in Physical Education, 1087 were participating in five out-door sports, as follows: baseball 470, football 90, tennis 54, track 433, and swimming 40. In addition, 264 were enrolled in various sports for elective credit, and 137 were enrolled in such sports without credit. A great many men fail to take physical exercise for the reason that they have not had the opportunity early in life of making a beginning with out-door sports. As the years pass by it becomes increasingly unlikely that a man will find the leisure and opportunity to learn them. It is our intention that the great body of our students shall have the opportunity of learning at least the rudiments of all common athletic sports.

**Activity of
the School
of Education**

The School of Education has made decided gain within the year; in the first place, by the establishment upon a sure foundation of the University High School, affording a free and greatly valued opportunity for practice teaching; and in the second place, through the introduction by Professor W. W. Kemp of opportunities of work and study in school administration. The new degree of Graduate in Education has now been established for those students in the School of Education who have completed successfully four years of professional experience, two full years of graduate study and a minimum of thirty-six units of upper division and graduate work, including twelve units of "group elective" courses in education, of which at least four units shall be seminar work, and at least twelve units of advanced work in a minor, together with a professional thesis and an examination.

**University
Examiner**

In October last a much needed new office was brought into being, i.e., that of University Examiner. This officer is primarily to assist the Recorder of the Faculties in matters pertaining to the University's relation with other institutions. Through him will be considered the case of every student applying for advanced standing. This work has heretofore been done by the Credentials Committee of the faculty which, however, in recent years has become almost completely overwhelmed by the mass of cases, about twelve hundred a year, requiring consideration. Thus the University Examiner will deal with cases of students coming from schools outside of California, from universities of other states, and from the junior colleges and other small colleges of California. He will furthermore serve as executive officer of the Committee on Credentials, and as a member of the Committee on Schools will examine most of the junior colleges of the State. These colleges are looking to the University for guidance and advice.

**A Board of
Research**

There has been created during the past year a committee which takes the form of a Board of Research. The function of the board is to act independently of departments in taking cognizance of men and problems available for the work of research within the Uni-

versity, and to report regarding the needs of such men in such matters as books, material, equipment, travelling expenses, or leaves of absence. The board began its operations the past year with a budget of \$2000. This amount was known to be small as compared with the field open before us. It was recognized, however, that it was only a beginning and if our plan proved itself valid that the amount could from year to year be increased. The amount furthermore is not intended to cover by any means the expenses of research, but only the incidental expenses thereof. Our experience of this year has shown that even with so small a sum as we had available very great aid could be furnished to a considerable number of persons, notably in the matter of travelling and clerical expense. A definite extra grant of two or three hundred dollars just at the right time is likely to prove of positive benefit to some work of relatively large range. I shall recommend to the Regents a large increase of this budget for next year.

**The New
System of
Conferring
Honors**

On May 8, 1916, the Academic Senate approved a plan of candidacy for honors. This plan provided a new classification of the students in the Upper Division of the College of Letters and Science, and it has been adopted also by the College of Chemistry. The essential features of the system are: Any student who receives honorable mention with the Junior Certificate will be accepted as a candidate for honors in the department chosen by him. After the first term of the junior year a student who does not receive honorable mention may be admitted to candidacy upon recommendation of his major department, approved by the Committee on Candidacy for Honors. A place on the honor list may be obtained only by good scholarship, but may be won by distinguished work in any particular half-year of the Upper Division course. The candidates for honors will be allowed more latitude in choice of studies, and in some departments will be enrolled in special courses planned for students of marked excellence. These students will be given special freedom in the use of the Library, laboratories, and museums of the University.

The old system used the honorable mention as a decorative award at the end of the course; the new system replaces an empty award with real opportunities and at the middle of the course opens to proven ability certain privileges which it has shown it can use.

Improvement of Students' English Worthy of mention also is a plan recently adopted by the Academic Senate with the aim of securing the co-operation of all university teachers in bettering the everyday English expression of undergraduate students. Every instructor is requested to bring all cases of seriously defective English to the attention of a committee known as the Committee on Students' English. Under the direction and advice of this committee its secretary, a specially appointed and remunerated officer of the faculty, will undertake the needed instruction of those so reported, both in class groups and as individuals. Students are to receive no university credit for this training. They may be required to enter the course at any time during the term and will continue in it until their English is satisfactory. This task is assumed under the device: Above all departments is the English tongue.

Faculty Committee on International Relations At its meeting of January 31, 1916, the Academic Senate voted to establish a Committee on International Relations. The purpose of this Committee is expressed in the following resolution of the Academic Senate, first presented in a report of November 22, 1915, from the University Council:

Resolved, That this University give increased emphasis to the work of instruction and research in problems of international and inter-racial relations; and that a committee of the Senate be appointed to formulate a plan for the organization and expansion of instruction and research having the definite purpose of assisting in the promotion of amicable world relations.

Professors J. C. Merriam, Edward Elliott, and T. H. Reed constitute the committee. In accordance with the opinion of this committee, that the problems which should receive first consideration are those which relate specially to the Pacific province, a small group of members of the faculty has been called to-

gether to consider one of the most important of the Pacific problems, viz., the relations between the United States and Japan. This group consists of Professors Barrows, Merriam, Hutchinson, Elliott, Stratton, Kroeber, and Kofoid. This committee, in the form of a seminar, is taking up a study of the Japanese problem. It has decided to give its first consideration to the securing of first-hand information concerning the present state of opinion in Japan regarding the relation of Japanese interests to those of the United States. The committee will, furthermore, examine into the legislation on the part of countries bordering the Pacific so far as it relates to matters of international significance. A third body of questions will concern the economic pressure in Japan as bearing upon Japanese expansion. And a fourth body of questions will concern the development of the Japanese nationalistic ideas.

Study of the Japanese Problem The Dean of Women, Miss Lucy W. Stebbins, has during the past year completed an examination of the opportunities for women students trained at the University to become self-supporting. Teaching has long been the accepted vocation for women, but the inquiry made by Dean Stebbins has brought out many interesting facts concerning over fifty different sorts of work upon which women can rely for self-support. Thirty-seven departments of the University were asked whether the training offered by them led to fields of paid work for women other than teaching; thirty-three departments replied. Sixteen, including languages, English, and history, claimed to lead to no occupation other than teaching. From the seventeen remaining came fifty-three suggestions of profitable vocations for women. Facts have been gathered as to the opportunities for advancement and the salaries paid in these positions, and suggested courses leading to equipment for these positions have been outlined. The greatest number of opportunities were offered in the College of Agriculture, the Department of Economics, and the Department of Home Economics. The natural sciences also contained many fields in which the skill or industry of women might be utilized. Some idea of the scope

of this inquiry is obtained from the listing of vocations suggested in agriculture, economics, household science, and household art:

Agriculture.—Supervisor in rural schools; scientific assistant in Government Service, (a) testing seeds, (b) compiling data, (c) laboratory experimental work; expert technician—employed in government service at experiment stations: (a) entomology, (b) plant pathology; landscape gardener, (a) florist, (b) nursery worker; general farmer. *Economics*.—Secretary; accountant; buyer for department store; executive secretary: (a) public—state commission of immigration, social insurance, charities and corrections, etc., (b) private—organized charity, work for dependent children, etc.; investigator and statistician for such private and public agencies as are noted above; case-worker: (a) public—widows' pensions bureaus, out-relief, probation and parole officers, health visitors, etc., (b) private—charity organization visitor, social worker for hospital, etc.; institutional worker: (a) matron, (b) special teacher, (c) director of recreation. *Household Science*.—Dietitian: (a) hospital, (b) institution; physician's helper; home economics advisor; food analyst: (a) state and municipal food and drug laboratories, (b) experiment station work; manager—cafeteria or restaurant. *Household Art*.—Designer of costumes: (a) stage, (b) present day dress, (c) fashion illustration, (d) fashion advertisement, (e) illustration; designer of decorative needlework—manager in shop work; designer for machine manufacture of woven fabrics, printed wall-papers, metal work; professional shopper; designer of millinery; decorator for entertainments, show windows, etc.; moving picture artist; buyer for commercial houses; museum expert; art librarian.

**The Bonnheim
Memorial
Fund**

The past year has seen the consummation of the work begun many years ago by Albert Bonnheim in creating the Joseph Bonnheim Memorial

Fund. Now Mr. Bonnheim and his fellow trustees have conveyed this trust fund, valued at more than \$100,000, to the Regents for the maintenance of scholarships. Through all these years Mr. Bonnheim's fatherly interest in the young people who have

had the opportunity of a university education through these scholarships has been not the least of the privileges of a Bonnheim scholarship.

**The Howison
Foundation**

In creating the Howison Foundation, through their gift to the University of property valued at approximately \$75,000, Professor and Mrs. George Holmes Howison have not only ministered to various excellent University purposes, and have not only provided for a continuance in perpetuity of Professor Howison's great life work of developing young men of brilliant powers in the field of philosophy, but they have set a suggestive example for other future benefactors of education.

**University
Infirmery—
The Dental
Department**

The establishment of dental service in the Infirmery a year ago has proved a most useful addition to the work of the Infirmery. For such work the students pay a charge based on the proportional service of the dentists of the Infirmery staff, plus material used. A student is charged at the rate of \$1.50 an hour, so that the cost to the individual is about two-fifths of what such service would cost if given by a private practitioner. The two dentists of the staff, Dr. G. F. Stoodley and Dr. B. G. Neff, each of whom receives a salary of \$1200 per annum, are kept constantly occupied with a full calendar of student engagements, extending often for a month ahead. During the year ending August 31, 1916, dental charges to the amount of \$3,713.25 were made. The national recognition which our Infirmery system has received may be illustrated by the comment of Dr. Richard C. Cabot, the distinguished Boston physician, chief of the medical staff of the Massachusetts General Hospital, and a member of the Harvard Medical Faculty. In articles in the American Magazine for April and May, 1916, which attracted wide attention, he pointed out that only the very poor and the very rich receive the best medical attention, because it is only the very poor and the very rich who receive treatment by a group of specialists with all the modern resources of hospital and scientific laboratory, while most people have neither preventive medical care nor group medical care. "After a considerable experience in medical prac

Praise for the Infirmary from Dr. Cabot of Boston tice here and abroad," testifies Dr. Cabot, "I think I am entitled to say that the work done in the Infirmary of the University of California is not surpassed in any place with which I am acquainted. It was thorough, accurate, up-to-date, kindly, humane work. I saw the students pouring into the clinic, many of them apparently in splendid health. Why, one might ask, were these healthy boys and girls going there? They were going because they needed advice about trifling ailments which, if treated in their trifling states, might very possibly be prevented from getting serious. A clinic such as that at the University of California encourages people to give the doctor that golden opportunity which he so often longs for and so often lacks, the chance to nip disease in the bud, to strangle it before it can get full headway in the system. The Infirmary, giving first-class treatment at \$6 a year, is self-supporting. This, as it seems to me, represents a triumph of organized medicine."

That which makes our Infirmary unique is that it utilizes exclusively the service of physicians who are paid a salary and take no fees of any sort. Those who enter the Infirmary as patients receive attention and treatment from the University staff only; they do not bring their physician with them. Any one who has seen the workings of the two plans will recognize that the difference is absolutely fundamental.

The Proposed Summer Session in Southern California At the suggestion of a committee appointed by the California Teachers' Association, we have been carefully considering the possibility of establishing a branch of the Summer Session in Southern California. Professor L. J. Richardson, and after him Dean W. M. Hart, visited Southern California and reviewed carefully the data involved in the problem. There seems to be a difference of opinion in Southern California regarding the matter. One of the features is that a Summer Session is already under way at the University of Southern California. We have decided that, for the present, the interests of the state will be best served by our co-operating frankly and freely with the University of Southern California toward making its session meet most fully the wants of the southern part of the state.

**Increased
Activity of
the Alumni
Association**

The past year has been a period of reconstruction for the Alumni Association. The business office of the Association at the University has been reorganized. The California Alumni Fortnightly has been established, the new Directory of Graduates has been compiled, the active membership of the Association has been tripled, and a plan has been set in motion to replace the dormant alumni clubs with energetic units in the numerous centers throughout the country. The beginning of the movement towards reorganization of the local alumni units took place at the reunion festivities at Kearney Park on June 3. A special train from San Francisco carried the bay counties delegation to the meeting. There were over one thousand alumni and former students of the University present.

**The University
Has Conferred
13,950 Degrees**

With the graduates of the present year, the University has conferred 13,950 degrees. Of these 8890 are the bachelor's degrees given for the completion of the regular four-year course in the Berkeley departments. The persons who have received two or more degrees from the University number 1244. Deducting this figure from 13,950, the total of 12,706 is reached, representing the number of persons holding one or more degrees from the University of California. With the deceased graduates numbering 880, the total number of living alumni is 11,826. In June, 1915, only 1302 were enrolled as members of the Association. In June, 1916, 2905 had been enrolled. The new business organization, aided by the Fortnightly, has brought a new vigor into the Association. The circulation of the old Alumni Weekly was 834; that of the Fortnightly is 2624. The alumni body is awakening to a lively consciousness of its duty and its power.

**Continued
Success of
Student Self-
Government**

The students of the University have continued during the past year the work of student self-government. The recognized procedure whereby discipline is administered has been followed with little friction or difficulty of any sort. So completely has the system become a matter of usage with the students of the University that in no case was the decision of the student committee questioned by the

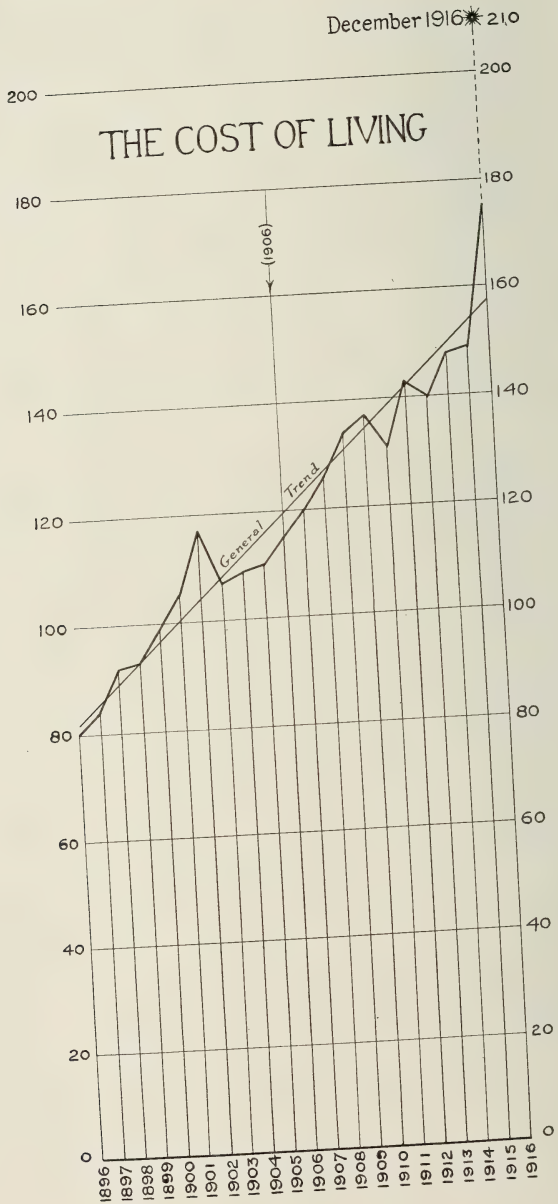
person concerned, and in no case did the Faculty Committee on Student Affairs feel called upon to exercise original jurisdiction.

I recognize with deep appreciation the harmony which has characterized during the year the action of regents, faculty, alumni, and students,—each body doing its own work in the interest of the whole.

Respectfully submitted,

BENJ. IDE WHEELER.

ANNUAL REPORT OF THE PRESIDENT



EXPLANATION OF CHART

Advance in Cost of Living during Past Twenty Years The chart on the opposite page shows the advance in the cost of living during the past twenty years. Each point on the line marks the average level of prices during the calendar year to which it corresponds. The star in the upper right hand corner marks the extraordinarily high level reached in the first week in December, 1916, which is much higher than the average for the eleven months preceding.

We need not go back twenty years to see what this chart means; ten years are amply sufficient. From 1906 to 1916 prices advanced from 115 to 175 on the scale, using for comparison the averages for each year. This advance is over 50 per cent. But that does not tell the whole story, for prices advanced rapidly and continuously all during 1916 and by December the level stood at 210, far above the average for that year and over 80 per cent above the average for 1906. This means that it takes \$180 in December, 1916, to buy as much as \$100 would have bought of these necessities of living in 1906. Conversely the purchasing power of a dollar in December, 1916, is only eleven twentieths or a little over half as much as it was in 1906.

Causes of the Increased Cost of Living The main trend has obviously no connection with the war. Its causes are two: first, the vast increase, since 1896, in the world's supply of gold; second, the increasing cost of food products, which enter more largely than cheapening manufactures into the cost of living. Since both of these causes were still in full operation when the war broke out there is reason to believe that prices would have continued to rise along the line marked "general trend."

The chart is based on the "index number" or scale of prices of the *Annalist*, which was selected because the figures are brought down to date each week. All the other standard compilations relating to the cost of living show the same main trend, and differ only in minor details. These figures are for the country at large, but similar compilations for California give closely equivalent results.

ANNUAL REPORT OF THE PRESIDENT

COMPARISON OF SALARIES PAID TO PROFESSORS, ASSOCIATE PROFESSORS,
ASSISTANT PROFESSORS, AND INSTRUCTORS FOR YEARS ENDING
JUNE 30, 1906, AND JUNE 30, 1916

PROFESSORS

1906			1916			
Number	Salary	Total Salary	Number	Salary	Total Salary	Increase
1	\$800	\$800	1	\$800	\$800	
1	1,000	1,000	2	2,700	5,400	
1	1,500	1,500	20	3,000	60,000	
1	2,000	2,000	5	3,300	16,500	
3	2,700	8,100	1	3,500	3,500	
8	3,000	24,000	9	3,600	32,400	
8	3,300	26,400	20	4,000	80,000	
3	3,500	10,500	3	4,500	13,500	
1	3,600	3,600	13	5,000	65,000	
5	4,000	20,000	1	6,000	6,000	
1	4,500	4,500	1	7,500	7,500	
1	5,000	5,000	1	8,000	8,000	
34		\$107,400	77		\$298,600	
Average, \$3,158			Average, \$3,878			22.8%

ASSOCIATE PROFESSORS

4	\$2,000	\$8,000	1	\$2,000	\$2,000
4	2,100	8,400	4	2,200	8,800
1	2,200	2,200	1	2,250	2,250
3	2,400	7,200	1	2,300	2,300
2	2,500	5,000	19	2,400	45,600
4	2,700	10,800	7	2,500	17,500
			12	2,700	32,400
			1	2,750	2,750
			1	2,800	2,800
			2	3,000	6,000
			2	4,000	8,000
<hr/> 18		<hr/> \$41,600	<hr/> 51		<hr/> \$130,400
Average, \$2,311			Average, \$2,559		
			10.73%		

ASSISTANT PROFESSORS

1906			1916			Increase
Number	Salary	Total Salary	Number	Salary	Total Salary	
10	\$1,400	\$14,000	1	\$1,200	\$1,200	
11	1,500	16,500	7	1,500	10,500	
4	1,600	6,400	1	1,600	1,600	
14	1,800	25,200	9	1,700	15,300	
5	2,000	10,000	11	1,800	19,800	
1	2,400	2,400	7	1,900	13,300	
1	2,500	2,500	37	2,000	74,000	
			1	2,100	2,100	
			8	2,200	17,600	
			5	2,400	12,000	
			5	2,500	12,500	
			2	2,700	5,400	
			1	3,000	3,000	
<hr/>		<hr/>	<hr/>		<hr/>	
46		\$77,000	95		\$188,300	
Average, \$1,673			Average, \$1,982			18.47%

INSTRUCTORS

1	\$600	\$600	1	\$300	\$300	
1	700	700	3	600	1,800	
7	900	6,300	1	766	766	
17	1,000	17,000	4	900	3,600	
2	1,100	2,200	11	1,000	11,000	
17	1,200	20,400	5	1,100	5,500	
4	1,300	5,200	20	1,200	24,000	
3	1,400	4,200	11	1,300	14,300	
3	1,500	4,500	9	1,400	12,600	
1	1,600	1,600	30	1,500	45,000	
1	1,800	1,800	5	1,600	8,000	
			3	1,700	5,100	
			6	1,800	10,800	
			4	2,000	8,000	
			1	2,100	2,100	
			1	2,200	2,200	
<hr/>		<hr/>	<hr/>		<hr/>	
57		\$64,500	115		\$155,066	
Average, \$1,131			Average, \$1,348			19.18%

SUMMARY OF REPORTS

SUBMITTED TO THE PRESIDENT BY DEPARTMENTS*

Agriculture.—For practical reasons the government of the College of Agriculture has heretofore been conducted by the Department of Agriculture. Through the internal reorganization of the University the Council of Agriculture has acquired this function, thus bringing to the consideration of the problems of the college a larger group of men. The Council of Agriculture consists of the President of the University, members of the Department of Agriculture of professorial rank, and a representative of each of the departments offering prescribed work in the College of Agriculture.

The first meeting of the new Council of Agriculture was held on November 29, 1915, with the President of the University presiding and seventy members present.

There has been a marked increase in the graduate work of the Department of Agriculture within the year. The graduate courses have been carefully revised as outlined in the Graduate Announcement. Seventy-two graduates have been enrolled or one-eighth as many as of under graduate students in agriculture. This increase has occurred in spite of the policy of the department not to appoint graduate students to assistant ships. Four doctor's degrees, 18 master's degrees, 89 bachelor's degrees and 55 certificates of graduation to University Farm School students were granted this year. The enrollment at the University Farm School has doubled in the last three years, having this year reached 314 students while the graduate and undergraduate students have, during the same period, increased thirty per cent, having this year reached 637. There were 181 students in attendance upon the Short Courses, making a total attendance of resident students of 1132. The enrollment of undergraduate students and Short Course students has not changed materially during the year, while the number of graduate students and farm school students has shown a marked increase.

* For report of Departments of Anatomy, Pathology, and Physiology see pp. 177, 184, 181, in the Report of the Medical School beginning on p. 17

Of the 169 students who entered the University Farm School last September for the first time, 100 were high school graduates, of whom 71 were able to offer University requirements, but preferred the briefer course open to them at the University Farm School. In addition 40 students had some high school training, while 19 had reached eighteen years of age without passing beyond the grammar grades. An analysis of the records of the students at the University Farm School for the two years ending June 30, 1916, shows that the best records as to conduct and scholarship are to be found among the high school graduates; the next best among the group which have had no high school training, while the poorest showing both as to conduct and scholarship is to be found among those young men who left high school before finishing their work. These facts should emphasize to parents the importance of exhausting all local opportunities for education before sending their sons away to school.

Not alone the increase in attendance at the University Farm School, but also the variation in the preparation of the students, has created conditions which must be met. It also calls for the statement of certain policies concerning the future development of the College of Agriculture. Already the number of students per instructor is too great to enable the most desirable individual supervision and instruction; already the University Farm is too small for existing activities. Whether it is to be the policy to go on growing, duplicating instructors and increasing by purchase or lease the farm area, or whether there will be established another school unit elsewhere, as at Kearney Park, Fresno County, is a question that must be considered seriously in the near future. The University Farm School, assuming the present farm area, cannot care for a much larger number of students without going below the maximum of efficiency. In this connection it is necessary to consider the needs of the increasing number of University students who go to the University Farm each year.

The enrollment in correspondence courses during the year has been 757, making a total of 28,936, of which 5562 are re-enrollments.

During the year 3132 persons have completed 3993 correspondence courses.

Fourteen counties now have Farm Bureaus completely organized, and thirteen Farm Advisers and three Assistant Farm Advisers have been at work. There are now 173 Farm Bureau Centers with an average membership of about forty. These centers are visited by the Farm Adviser each month on a regular schedule. During the year the Farm Advisers have spoken at these farm center meetings to 64,144 persons, and have visited 1900 farms, by means of which the results of the U. S. Department of Agriculture and the University of California Agricultural Experiment Station have been brought directly to bear upon the farmers' problems.

For the year ending December 31, 1915, 92,000 letters were written by resident members of the staff, many of them in direct answer to inquiries of a technical character.

It was hoped that the Smith-Lever Act would relieve resident investigators and teachers from much of the extension work that has always consumed a large portion of their time and energy. Thus far, however, the field men, instead of relieving this strain, have increased it, because they find so many problems which must be referred to the men who are especially employed to investigate them.

Fifteen years ago most of the students in agriculture came from farm homes. Last year inquiries were sent to 600 students of the College of Agriculture, to which 450 replied, showing that 41 per cent of the students were brought up on farms, but only 32 per cent came to the University directly from farm homes. The actual amount of full day's work for the entire 450 students averaged nineteen months, but there were 75 students who, according to their own statement, had never done a full day's work on a farm.

Doubtless many persons think of the University Farm School as a place where farm boys lacking in scholarship go to get some practical training. As a matter of fact, they are mostly high school graduates from city homes. The department has made strenuous efforts to find the young men on farms who have reached the age of eighteen without having had the opportunity of high school training. Thus far it has been singularly unable to reach this class of men. These facts serve to emphasize the necessity for some procedure by which the graduate of the College of Agriculture shall secure that acquaintanceship with farm life and farm methods which is so essential to him, whether he is to enter commercial agriculture or one of the many types of salaried position to which he is eligible when properly trained. Much thought has been given to this subject by members of the staff, and such a start as present facilities permit has been made in giving students actual experience in farm operations.

Plans for the laboratories, dwellings and farm barns of the Citrus Experiment Station, for which the legislature appropriated \$125,000, have been completed. These laboratories provide facilities for the chemical, physical and biological study of soils, and for the study of the growth diseases and insect enemies of semi-tropical, particularly citrus fruits.

Plans for the second unit of the Agricultural group on the campus at Berkeley, for which the Regents have set aside \$350,000, have been prepared and will house the Divisions of Agronomy, Citriculture, Forestry, Genetics, Pomology, Soil Technology, and Viticulture. This unit has been officially named "Hilgard Hall," in honor of the late Dr. Euger Woldemar Hilgard, the first Director of this station, for more than forty

years a professor in the University of California, and a soil student of rare distinction.

The Annual Report of the Director, which is printed separately, deals this year chiefly with the administrative features of the department. The aims and problems are set forth, particular emphasis being placed upon those research problems which the department has not, either for lack of time or facilities, thus far been able to attack.

There have been outlined during the year eighty new projects. The Report gives a list of 170 projects upon which data have been obtained during the year. There have been published thirteen bulletins and twenty circulars, in addition to the Director's Annual Report.

In the aggregate about one million copies have been printed, of which 820,000 have been distributed. The mailing list has increased from 26,000 to 31,000 addresses. The number, title, and author of bulletins and circulars published since the last report are stated below:

BULLETINS

- Bull. 257. New Dosage Tables. C. W. Woodworth.
- Bull. 258. Mealy Bugs of Citrus Trees. C. P. Clausen.
- Bull. 259. Commercial Fertilizers. J. S. Burd.
- Bull. 260. The Determination of Availability of Nitrogenous Fertilizers in Various California Soil Types. C. B. Lipman and P. S. Burgess.
- Bull. 261. Melaxuma of the Walnut "*Juglans Regia*." H. S. Fawcett.
- Bull. 262. Citrus Diseases of Florida and Cuba, compared with those of California. H. S. Fawcett.
- Bull. 263. Size Grades for Ripe Olives. F. T. Bioletti.
- Bull. 264. The Calibration of the Leakage Meter. C. W. Woodworth.
- Bull. 265. Cottony Rot of Lemons in California. C. O. Smith.
- Bull. 266. A Spotting of Citrus Fruits due to the Action of Oil Liberated from the Rind. H. S. Fawcett.
- Bull. 267. Experiments with Stocks for Citrus. W. W. Bonns and W. M. Mertz.
- Bull. 268. Growing and Grafting Olive Seedlings. F. T. Bioletti and F. C. H. Flossfeder.
- Bull. 269. Phenolic Insecticides and Fungicides. G. P. Gray.

CIRCULARS

- r. 133. The County Farm Adviser. B. H. Crocheron.
- r. 134. Control of Raisin Insects. F. T. Bioletti.
- r. 135. Official Tests of Dairy Cows. F. W. Woll and Cora J. Hill.
- r. 136. *Melilotus Indica* as a Green Manure Crop in Southern California. W. M. Mertz.
- r. 137. Wood Decay in Orchard Trees. W. T. Horne.
- r. 138. The Silo in California Agriculture. F. W. Woll.
- r. 139. The Generation of Hydrocyanic Acid Gas in Fumigation by Portable Machines. H. D. Young.

- Cir. 140. The Practical Application of Improved Methods of Fermentation in California Wineries during 1913 and 1914. F. T. Bioletti and W. V. Cruess.
- Cir. 141. Standard Insecticides and Fungicides vs. Secret Preparations. G. P. Gray.
- Cir. 142. Practical and Inexpensive Poultry Appliances. J. E. Dougherty and W. E. Lloyd.
- Cir. 143. Control of Grasshoppers in Imperial Valley. W. E. Packard.
- Cir. 144. Odium or Powdery Mildew of the Vine. F. T. Bioletti and F. C. H. Flossfeder.
- Cir. 145. Suggestions to Poultrymen Concerning Chicken-Pox. J. R. Beach.
- Cir. 146. Jellies and Marmalades from Citrus Fruits. W. V. Cruess.
- Cir. 147. Tomato Growing in California. S. S. Rogers.
- Cir. 148. Lungworms. W. B. Herms and S. B. Freeborn.
- Cir. 149. Lawn Making in California. J. W. Gregg.
- Cir. 150. Round Worms in Poultry. W. B. Herms.
- Cir. 151. Feeding and Management of Hogs. J. I. Thompson.
- Cir. 152. The Bulk Handling of Grain. B. H. Crocheron.
- Reprint of Circular 113, Correspondence Courses in Agriculture.

Anthropology.—From the point of view of research and publication the department reports several pieces of good fortune. Through a private gift it has been possible to begin a very important archaeological survey of the Channel Islands, off the coast of Southern California. This resumes the work started some years ago by Dr. Philip Mills Jones, but with his work as a basis promises even fuller results. The survey of Santa Cruz Island, for many reasons the most important of the group, and one hitherto untouched, has been very carefully done and is now complete.

C. B. Bradley, Professor of Rhetoric, Emeritus, has worked out a method for plotting graphically the musical tones which play such an important part in certain languages. He has applied his method with surprising results to the very difficult languages of southeastern Asia. His results are by far the most important contribution to the literature on the phonology of these languages. This seems to be actually the first time that real scientific methods have been applied to the analysis of Chinese and Siamese tones.

The investigations of Associate Curator Gifford in regard to the social organization of California tribes have uncovered a tribal system of organization, with a symmetrical arrangement of clans and totems, which is highly novel and unexpected in California.

The enrollment in the department for the fall term was 231, and for the spring term 329, showing a substantial increase.

The University's Museum of Anthropology has entertained visitors to the number of 14,686. Many of these visitors are drawn into the museum through public lectures. Associate Curator Gifford has himself attracted

a total of 6171 through the medium of 112 lectures concerning the museum collections or related topics. We can say now that with few exceptions the collections are catalogued and disposed of in a way that makes them available for study and use. Practically every available foot of space for display purposes is now in use. The museum as a whole is in a vastly improved condition, as regards everything except the permanent fire risk.

During the absence on leave of Professor A. L. Kroeber, who spent the year in the East, in Europe, and at Zuni, New Mexico, Assistant Professor T. T. Waterman acted as head of the department.

Architecture.—This department has attempted to solve its problem of lack of space for the rapidly increasing number of students by raising the standard in such a way as to eliminate some of the students who seem less well fitted for the professional study of architecture. Even under the more stringent requirements, however, the room at the department's disposal is far too cramped for the best results.

The introduction of the system of "values" in the course in architectural design has been the means of great stimulation throughout the work of the department. This system enables the individual student to advance as rapidly as his attainments justify, regardless of the rapidity of advance by the rest of his class. Similarly those who by reason of immaturity, lack of preparation, or other cause require more time are given the opportunity of progressing less rapidly without affecting their standing in the school. Excellent as the working of this system has already been, increasing benefits are expected from it as time goes on.

The change by which the school of architecture has been made purely a graduate school has simplified the administration and defined the standing of the students in a most advantageous way. The solidarity and esprit de corps of the department have been greatly benefited by the regularly recurring reunions.

The exhibitions during the last year have been limited to the work of the department, which has now assumed such proportions as to keep the exhibition hall occupied practically all of the time. While this is a distinct gain in one way, it prevents the opportunity to have interesting loan exhibitions like those which contributed so much last year to the attendance. The attendance this year at the exhibition hall was about x thousand visitors.

The department has been the recipient during the last year of one hundred and fifty fine photographs from the Commission of the French government to the Panama-Pacific International Exposition, and from a friend has received three hundred and nine photographs collected by the late Newton J. Tharp, the well-known architect of San Francisco.

The most crying needs of the department at the present time are uniform tablet-arm seats in the lecture room, a fire-proof room for the department library, undergraduate scholarships and graduate fellowships, prizes for distinguished work, and the setting up of a chair of Landscape Architecture, either as a part of, or in closest affiliation with, the School of Architecture.

Astronomy.—The total enrollment in all astronomical courses for 1913-14, 1914-15, and 1915-16 has been 682, 698, and 746. The corresponding figures for course 1, the lower division course in general astronomy, were 368, 385, and 339. The falling off in the enrollment in course 1 is probably due in part to the addition of a regular quiz hour each week without additional credit and in part to the fact that students naturally drift into those lower division science courses which are demanded as prerequisites for upper division work. The number of women in this course has materially diminished with the increasing demand of prerequisites in chemistry for major work in domestic science. The falling off in the number of lower division students has been more than met, however, by the increased enrollment in the more advanced courses. As heretofore, the enrollment in astronomy 2, the lower division course in practical astronomy, has been limited by the capacity of the observatory. The want of additional laboratory space and equipment becomes more and more pressing from year to year. Additions of consequence to the equipment would be unwise without previous provision for its installation.

In September and October all arrangements for the control of the new Sather Tower clock from the observatory were completed. The Howard mean time clock, formerly housed in the transit room, and the new Riefler standard sidereal clock, are now mounted in a temporary clock vault constructed in the basement of the north dome. The records of the running of these clocks in the new vault show that the vault is fairly satisfactory as a temporary expedient until funds are available for a better one. Actual connection of the Howard mean time clock with the Sather master clock will not be made until the chimes shall have been installed in the Sather Tower.

The minor additions to the equipment of the observatory are: A switchboard designed by Mr. Dinsmore Alter and constructed by Mr. Valdemar Arntzen; a new chronograph constructed by Mr. Valdemar Arntzen; a Matlick Tellurian; a three-inch portable refractor, and a two inch astronomical transit. The department has suffered a severe loss in the resignation of Dr. Seth B. Nicholson, instructor in astronomy, who left the University to join the staff of the Mt. Wilson Solar Observatory, of the Carnegie Institution. As hitherto, the department has contributed to the progress of astronomical science.

Botany.*—The University Herbarium continues to serve as a clearing-house of botanical information. During the past ten months 1808 plant determinations and notes, mostly of an economic nature, have been supplied in response to inquiries by correspondence. It is estimated that not less than 3000 determinations and items will have been supplied by the end of the college year. These determinations have all been made by members of the staff whose principal duties are along other lines. Loans of herbarium material have been made for critical study to various specialists and institutions.

The principal needs of the herbarium are: A curator on full time, whose duties would include the handling of correspondence of a botanical nature, especially for the Agricultural Experiment Station; the completion of the equipment of steel cases. To fully equip the mounted portion of the herbarium would require about forty-eight unit cases, costing approximately \$7500. There should be an additional yearly allowance of \$300 for the purchase of exsiccatae, card indexes and for book bindings, etc. There is needed a suitable building for the housing of the herbarium. This should also provide at least for the advanced work of the laboratories, in order to facilitate the work of the department.

According to a census taken early in the first semester, there were demanding laboratory accommodation in the Botany Building (with only three laboratories, exclusive of the attic) 499 students, and of lecture work outside the Botany Building 797 students. These figures, which represent, with close approximation, the number during the crowded semester, taken in connection with complications brought about by schedule arrangements, show how impossible it is for the members of the department to do work satisfactory either to the students or to themselves. Overcrowding, too frequent use of the same laboratories, lack of special facilities of all sorts, combined with a lack of safety from possible fire damage both to people and apparatus, are to be emphasized in this connection. More ample quarters are a positive necessity.

In the Botanical Garden effort is being made to keep the beds fairly stocked with plants of use in illustration and laboratory work, and to continue certain experiments in connection with research. The situation of the garden is unfavorable to serious work and there are practically no greenhouse or propagation facilities. It is hoped that at an early date the garden may be removed to the Strawberry Canyon site and greenhouse and other facilities may be provided.

* A list of gifts presented to the Department of Botany, its garden, museum and herbarium, will be found on pp. 310-313.

Celtic.—The work of the department has proceeded on lines similar to the preceding year's. A secondary course in 19th Century Welsh was given for the first time, as also an advanced course in 16th Century Irish. The total number of students in the department has increased, indicating a steady if slow growth. The library of Celtic books is gradually approaching adequacy, chiefly through the generosity of the Knights of St. Patrick, of San Francisco.

Chemistry.—Plans for the first wing of the permanent chemistry building have engaged much of the attention of the department. This building will house all of the advanced courses and research work in technical, inorganic, and physical chemistry. It has been so designed as to afford unusual facilities for investigation in all branches of chemistry, and especially for research in pure and applied electrochemistry, exact thermometric and electrical measurements, and for work at very high and very low temperatures. Most of the graduate and senior work in the department will be done in this new west wing. In the ultimate plans for the complete chemical laboratory the north and south wings will be devoted to the sophomore and junior work in analytical and organic chemistry, as well as to the more advanced work in the latter subject, while the east wing will be devoted to elementary instruction. The completion of the new building will afford further opportunity to expand the work in technical chemistry. Before the outbreak of the European war there was an unprecedented demand for trained chemical engineers. The present phenomenally increased demand will remain to a large extent permanent owing to the establishment in this country of many new chemical industries which will be continued after the cessation of the war. One of the most urgent duties of the universities is the preparation of men qualified to take part in the development of these new industries. The College of Chemistry has established a new curriculum in chemical engineering. Men who receive this training will be well qualified to act as privates in the chemical industries, but the officers will, as a rule, be chosen from those who have continued their preparation in graduate years, and especially from those who have received the Doctor's degree. Of the nine men who have received the Ph.D. degree in chemistry during the past two years, the majority have entered upon academic work, but several have accepted important positions in industrial enterprises. It is to be hoped that this desirable balance between the pure and applied chemistry may be maintained.

Civil Engineering.*—The following fourteen sub-groups of Civil Engineering instruction have during the past year undergone further development: Structural and Architectural; Railroads and Economics; Sur-

* A list of gifts presented to the Department of Civil Engineering during the year will be found on p. 314.

veying, Geodesy and Drafting; Summer School of Surveying; Sanitary and Municipal; Highway Engineering; Irrigation Engineering; Sanitary courses for Architects, Home Economics (e.g., plumbing, ventilation, and lighting of buildings); Hydraulic laboratories for sanitary and irrigation engineers; Testing laboratory—student instruction; Experiment Station and Research Laboratory—testing of materials; Machine Department—constructing University apparatus; thesis work; graduate instruction.

The outstanding needs of the department are: the establishment of a professorship in architectural engineering, because of the growth of the School of Architecture; the creation of a professorship in railroad engineering (in its location, structural, and economic problems); the erection of a chair in surveying and geodesy, the holder of which would alternate with the Professor of Railroad Engineering as Director of the Summer School of Surveying; an increase in the number of mature instructors in the department; the assurance of a satisfactory permanent site for the Summer School of Surveying; more room for laboratories in sanitary engineering; closer relationship between the departments of Irrigation and Civil Engineering, to be brought about by housing the departments in the same building and by establishing a laboratory for hydraulic, sanitary, and irrigation investigations.

During the past year the department has enjoyed the co-operation of the staff of the Bureau of Sanitary Engineering, California State Board of Health, which staff, under the leadership of Chief Engineer C. G. Gillespie, is housed in rooms adjoining the sanitary laboratory. This co-operation argues for increased effectiveness in sanitary instruction.

Drawing and Art.—While the awakening interest throughout the State in drawing, graphic and applied art is beneficial to the department in many ways and is highly desirable, it is adding to the department's work to such an extent that provision for clerical assistance would give increased efficiency. The new teachers' courses and a closer relation to the School of Education should better the department's preparation of students who intend to become teachers. Increased enrollment further emphasizes the fact that the classes in drafting are too large and that more instructors are needed in order that more individual instruction can be given; some classes are two and even three times as large as they should be.

Economics.—The rapid increase in the number of students referred to in previous reports has persisted. The registration in the elementary course now stands at 675. During the ten-year period ending in 1915-16 the enrollment in all economic courses has grown from 820 to 3420. The department has, therefore, continued to devote a considerable portion of its energy to the problem of instructing large groups of students in

some reasonably efficient way. Incidental to this, the whole curriculum in economics has been critically examined and some changes made.

The department has co-operated sympathetically in the administration of the system of awarding honors, adopted by the University Senate, hoping to find in it a means of increasing the amount of attention given to the better students in the University. It has also made suggestions for summer school instruction in economics which may help to promote continuity in that work.

Education.—The increase in the number of students continues. During the second semester of the year 1915-16, the number of enrollments was 1350; minus duplicates, 839. For the corresponding period of 1914-15 it was 1102; minus duplicates, 727. It is estimated conservatively that less than half of the students electing work in the department look forward to teaching as a more or less permanent pursuit. Many enroll in courses in education because of the contribution of these courses to liberal culture.

A notable addition to the staff of the school is the appointment of Professor W. W. Kemp to the new position of Professor of School Administration. The establishment of this chair strengthens the department signally.

Among policies pursued by the department may be mentioned prominently the endeavor to promote among the students more thorough training in oral English; the successful operation of "self-conducted seminars" in which the senior and graduate students themselves conduct class exercises under the general oversight of the professor in charge; and the department's determined stand in discouraging the tendency to push highly specialized scholarship and vocational attitudes far down into the undergraduate course.

Great needs of the department are felt in its present inability to meet adequately the demands made upon it in the fields of educational psychology, elementary education, and vocational training. The opportunities for such study offered during the Summer Session are obviously not sufficient.

Progress in the School of Education is indicated by the establishment of the higher professional degree, Graduate in Education. At least a dozen young men have already declared their intention to enter upon candidacy for the new degree. At least three, it is safe to say, will present their theses in the course of the coming year and come up for their examinations.

English.—The only noteworthy matter of departmental policy is the plan for co-operation in the improvement of English usage throughout the University. Professor Kurtz, the officer in charge of the freshman classes in English, has devised a method whereby instructors in subjects

other than English are to pay special attention to the form and English usage of students, as these are shown in test or examination papers, and are to report students who are markedly deficient. These students are then to be organized into a class for special instruction in the elements of correct discourse, under a special instructor supervised by some delegated member of the English Department. The course will be compulsory for such students, but no credit will be given them.

The English Department has for seven years partaken in the instruction of a senior course in the College of Commerce, paying special attention to matters of form and correct expression. During the coming year a similar plan will be adopted in certain courses of the College of Agriculture. This type of co-operation is meant to improve the English usage of able or at least satisfactory students, whereas the other type aims at removing defects in untrained or deficient students. During the absence, on Sabbatical leave for the year 1915-16, of Professor C. M. Gayley, Associate Professor C. W. Wells acted as head of the department.

Geography.—The addition of a teaching fellow has enabled this department to give some much needed individual attention to freshmen in the beginning classes. The enrollment the first semester in Geography 1A was 319 and in the second semester in Meteorology there were 164 students, the latter class being more than twice as large as the preceding year.

There are frequent calls from engineers and technical workers outside the University for local meteorological data. It is desirable that in the near future a permanent and suitable location may be assigned for the observing station, that the observations may give more reliable results, and also that instruments may be installed to give data concerning sunshine and wind velocities.

Dr. Buwalda's first year's work as instructor has been of a very satisfactory character and full of promise for the future.

Geology and Mineralogy.—The absence of Professor Louderback in China necessitated the engagement of temporary assistance to carry on his work and the department was fortunate in securing the services of Mr. J. B. Umpleby of the United States Geological Survey as acting associate professor for the year. As in previous years, the rooms of Bacon Hall are too small to accommodate the large class in elementary geology, and the efficiency of the course is reduced by the necessity of giving the instruction in another building remote from the illustrative material.

The work of the Seismographic Station has proceeded as usual under the immediate charge of Mr. E. F. Davis and the customary two semi-annual bulletins have been issued recording the observations of both the

Berkeley station and that at the Lick Observatory. These stations are now recognized throughout the world as observatories of the first rank in seismographic work.

New equipment has been supplied to the department during the year which will facilitate new work in Mineralogy, Petrography, Metallography, and in field geology. One of the urgent needs of the department is a fund which would yield from \$500 to \$1000 a year to defray the traveling and field expenses of advanced students who are desirous of taking up the geological study of various parts of the state, but who are themselves unable to meet the expense involved.

German.—There has been a decrease in the enrollment in the lower division and increases in the enrollments of the upper division and the graduate department, the figures being, for 1914-15 and 1915-16 respectively, as follows: Lower division, first semester, 790:680; second semester, 758:654; upper division, first semester, 450:476; second semester, 382:511; graduate courses, first semester, 34:62; second semester, 58:67. The most gratifying feature has been the continued development of the post-graduate work, as evidenced by the attendance of six candidates for the Doctor's degree.

History.—The chief event of interest to this department during the past year was the successful holding of the Panama Pacific Historical Congress in San Francisco, Berkeley, and Palo Alto in July, 1915. All members of the department took an active part in this congress. The delegation of Professor Altamira by the Spanish government and of Professor Murakami by the Japanese government gave it an international character. Both of these distinguished delegates have expressed great appreciation of the hospitality afforded to the congress by the University of California. The papers read at its different sessions are being published, with Professor Herbert E. Bolton and Professor H. Morse Stephens as editors, under the title "The Pacific Ocean in History."

Interest in California history continues, as shown by the maintenance of two traveling fellowships by the order of the Native Sons of the Golden West and by the passage by the California legislature of a bill, fathered by the same order, establishing a historical survey of local historical materials in the State. The commission in charge of this survey consists of Professor Herbert E. Bolton, the Hon. John F. Davis of San Francisco, and Mr. H. M. Guinn of Los Angeles. Mr. Owen C. Coy, a graduate student in the Department of History, was appointed Executive Secretary of the commission. Aided by six assistants, he is making a thorough investigation of California local historical material.

The new chairman of the Native Sons' history committee, Mr. William J. Hayes, an alumnus of this University, is pursuing the work of promot

ing the study of California history with greatest energy. Professor Charles E. Chapman has in the press a volume upon the foundation of Spanish California, which is the first fruit of the work of the University in the study of California history. Mr. H. I. Priestley, Assistant Curator of the Bancroft Library, has in the University Press an elaborate study of Mexican history in the eighteenth century.

Professor Herbert E. Bolton, now everywhere recognized as a leading scholar in the field of Spanish American history, has just published in the series of "Original Narratives of Early American History," a volume on "Spanish Exploration in the Southwest, 1542-1706." Such work as that of Professors Bolton, Chapman, and Priestley places this History Department among the most productive departments of history in the United States. Recognition that there is a vigorous school of history upon the Pacific Coast is demonstrated by the holding of the Panama Historical Congress, and further by the fact that Professor H. Morse Stephens was President of the American Historical Association during the past year, presiding at its meetings in San Francisco and in Washington, and also by the fact that the Spanish government was sufficiently impressed by the work in Spanish history on the Pacific Coast to confer upon Professor Stephens, on the suggestion of Professor Altamira, the honor of Commander of the Royal Order of Isabella the Catholic. The next step to confirm this relationship between the History Department of the University of California and Spain should be the establishment of an exchange professorship between California and Spain, and the establishment of a definite home for Spanish historical studies in Seville.

Professor Paetow is continuing the work commenced in 1914 in his publication of "The Battle of the Seven Arts." Professor McCormac's "Life of President Polk," laying weight upon his western policy, is now ready for publication. Professor W. A. Morris has taken charge of the work of teaching history in the high schools and organized a very successful session of the Panama Pacific Historical Congress dealing with the teaching of history in schools, and an equally successful meeting at Palo Alto of the Pacific Coast Branch of the American Historical Association. No year has perhaps been so significant for the department as the year 1915-16. The burden of teaching very large classes is still heavy, and the department needs more professors, more assistants, and, above all, more books, but it has shown that it can with its limited staff not only carry on a very heavy amount of teaching but can combine with very remarkable activity in production.

Hygiene.—In caring generally for the health of the students, members of the Hygiene Department have co-operated with the authorities in making surveys of the rest rooms, toilet rooms, and eating places for the men and women students on the campus. Members of the Infirmary Staff have

examined students at the Department of Physical Education for skin diseases, and have visited reading rooms and several fraternity houses for the purpose of investigating the reasons for the many errors of refraction found among the students. Students, faculty members, and their families continue to take advantage of the immunizing service, or vaccinating against typhoid, in yearly increasing numbers. Statistics as to this work are tabulated on page 136.

The report of the Assistant Professor of Epidemiology shows that the limiting of the number of students in the course in epidemiology has resulted in marked improvement in the quality of work done, because of the increased possibility of individual supervision. A new course in advanced epidemiology was given in the first semester as a substitute for the Lower Division course by those students who had already received instruction in chemistry and bacteriology. Health survey class excursions have been conducted weekly in connection with the course. During the year, graduate students have been investigating ventilation of school buildings, the organisms causing common colds, and the preparation of typhoidin. A senior student under the direction of the Department of Economics and this Department conducted a medical social survey of the Berkeley Dispensary. Another senior student was appointed Assistant Bacteriologist to the Oakland Health Department, securing the position by competitive examination.

During the year ending July 1, 1916, the California State Board of Health, by increasing the staff of the State Hygienic Laboratory and broadening its scope of work, created the Bureau of Communicable Diseases. In this same period Dr. W. A. Sawyer, Director of the Bureau of the Hygienic Laboratory, was appointed a member of the California State Board of Health by the Governor, and was chosen Secretary and Executive Officer of the Board. This automatically severed his Directorship of the Bureau of the Hygienic Laboratory after a continuous meritorious service extending over a number of years. In January, 1916, Dr. James Gordon Cumming was appointed Director of the Bureau of Communicable Diseases. Dr. Cumming had previously been in charge of the Pasteur Institute of the University of Michigan.

The Bureau has undertaken the free distribution to institutions and physicians throughout the State of an outfit for the prevention of ophthalmia neonatorum. This is a commendable piece of work, inasmuch as a comprehensive study of the statistics relative to blindness in the new born makes plain how many cases can be prevented. The Bureau has continued a special study of the epidemic of rabies in California. Since 1909 there have been 1897 positive examinations for rabies in the State of California, 1078 of which were examinations of dogs. The advent of the disease among coyotes in Modoc and Lassen counties has been mad

the basis of a remarkable campaign against these animals by the California State Board of Health. Six hundred and forty-one persons have been treated with the virus in the Pasteur treatment for the prevention of rabies manufactured and administered by this Bureau.

The regular diagnostic tests for the various preventable diseases, especially diphtheria, tuberculosis, typhoid fever, gonococcus infection, malaria, and syphilis, have been carried on as heretofore. The performance of the Wassermann test for the diagnosis of syphilis is a recognized public health measure. Twenty-four hundred of these tests have been performed free of charge at this Bureau. Again, typhoid vaccine has been distributed free to physicians and institutions throughout the State.

Special investigations have been carried on for the State Board of Health in a variety of lines. Outbreaks of typhoid fever, rabies, small-pox, scarlet fever, diphtheria, and bacillary dysentery, have been investigated in the field. Of special interest was the investigation at Napa of several hundred cases of bacillary dysentery, the Hiss-Russell "Y" type of dysentery bacillus being isolated. This was the first outbreak of its kind in California with a recognition of the causative organism.

In an investigation of a milk-borne typhoid fever epidemic in Richmond the efficiency of pasteurization of milk supplies as a protection against typhoid fever was plainly shown, inasmuch as there was absolute protection to thousands of customers by its use.

The investigation of hookworm disease in the mines of California has brought forth exceedingly interesting data. The laboratory results have shown that over 50 per cent of the miners in one region investigated are infected with hookworm disease. The recognition of this insidious disease with the resulting benefit of proper treatment will be plainly shown in the future by the increased efficiency of the miners. This investigation is of great importance because none of such an intensive character has been carried out so far in the United States.

Doctors Geiger and Kelly discovered a new type of malaria in California known as the quartan variety. These two investigators prepared an endemic index of malaria in the northern part of the Sacramento Valley.

The Bureau of Communicable Diseases, with its laboratory, bears an important relation to the Hygiene Department. The use of its laboratory facilities and unlimited material for research for students is of great value.

Irrigation.—The most important development in instruction which has taken place in the past year is in the following courses: Agricultural Use of Water and Irrigation Practice; Irrigation Engineering, and Operation and Maintenance. The enrollment in the first course was largely increased through its prescription by most of the divisions of the College

of Agriculture. In the course in Irrigation Engineering it has been possible to obtain better work from the students by the use of the textbook in three volumes on "Irrigation Practice and Engineering," written by B. A. Etcheverry. The course on Operation and Maintenance has been materially strengthened by the use of a very complete set of notes prepared by Professor Harding. The total instruction given by the department now aggregates 45 units, and covers the several phases of irrigation, namely: Irrigation Engineering; Agricultural Use of Water; Irrigation Institutions; Water Codes and Economics; Drainage of Irrigated Lands; Operation and Maintenance of Irrigation Systems. The courses are planned primarily to meet the needs of the students of the colleges of Civil Engineering and Agriculture.

A careful comparison with the instruction in Irrigation given by the other state colleges or universities shows that the department offers more complete courses in all the phases of irrigation to both classes of students (Agriculture and Civil Engineering) than in any other institution.

The total enrollment in the courses given by the department was 309 in 1915-16, as compared with 293 in 1914-15 and 258 in 1913-14.

Members of the staff continue their activity in publication and the department has devoted considerable attention to answering requests for information and advice regarding problems in irrigation.

The needs of the department are more office, lecture room and drafting room space and the establishment of a joint sanitary engineering and irrigation laboratory in or adjoining the Civil Engineering Building.

Jurisprudence.—Marked growth has characterized the past year. Notwithstanding stricter adherence to high standards, or perhaps in consequence thereof, attendance in the School of Jurisprudence increased from 127 in 1914-15 to 161 in 1915-16. It is noteworthy, also, that of these 161 students 94 were university graduates, representing twenty-one different institutions. The department of jurisprudence has had under its instruction, in addition to the number of professional students mentioned, 610 students enrolled in non-professional law courses.

A new system of conducting moot courts has been introduced during the past year. All first-year law students have been required to prepare and argue several cases. Second- and third-year students have supervised and assisted in this work. Great interest and marked success have attended this new arrangement. Special lectures have been given by Hon. William W. Morrow, Judge of the United States Circuit Court of Appeals, and by Warren Olney, Esq.

The California Law Review, the publication of which was begun in November, 1912, is now an assured success. At the outset its existence was guaranteed for a period of five years by some six friends of the

law school. It has, however, only once been found necessary to call upon the guarantors, and then only for one-half of their promised annual subsidy. The circulation and usefulness of the Review steadily increase.

An additional building is becoming an urgent need. Boalt Hall has about reached its capacity. At many hours in the day all the seats in the reading-room are occupied, and the first-year classes fill the largest lecture halls. The special features of a new building, which would be placed immediately south of Boalt Hall, would be a large lecture hall on the first floor and a large reading-room and a number of individual offices on the second floor.

Latin.—The enrollment for the past year shows an increase, though it is not so marked as in the preceding year. The enrollment in 1913-14, reckoned by semester hours, was 2174; in 1914-15, 2822; and in 1915-16, 2834. The comparatively stationary size of the classes in the ancient languages has been consistent with continuity and thoroughness in teaching methods and has guaranteed the students a liberal amount of individual attention. The increase of interest in the writing of Latin is shown by the fact that nine students competed for the Richardson Latin Prize, and that the enrollment in Latin 3 leaped from 19 in 1914-15 to 51 during the past year. The annual bulletin of the department has now been issued for the third time and copies of it have been sent to all Latin teachers in the State. By thus furnishing teachers help in the problems that confront them the department is coming more and more into touch with the teachers, who are encouraged to call on the department for any assistance that is within its power to afford.

Mathematics.—The number of students enrolled in the courses in mathematics has increased substantially in proportion to the general increase in the University, but the department has managed to get along without an increase in the staff, owing to the excellent teaching quality of its members, and partly also to a slight reduction in the number of advanced courses.

The department has modified its requirements for the high school certificate by the introduction of two new upper division courses, which are primarily for candidates for that certificate. These courses provide an historical and critical review of Geometry and Algebra respectively, with special reference to modern developments in those fields.

The courses in higher branches of mathematics are still open to those prospective high school teachers who may choose to elect them, but proficiency in advanced mathematics will no longer be regarded as the chief qualification for high school teaching.

The number of courses offered in the summer session is steadily growing, but the department has been unable to keep pace with the demand for advanced courses.

Following out the policy indicated in the last report, an exchange has been arranged with Columbia University, which brings to the University for the first half of the year 1916-17 the distinguished Adrain Professor of Mathematics at Columbia, Dr. Cassius Jackson Keyser.

The degree of doctor of philosophy was awarded to two candidates, Tracy Augustus Pierce, and Arthur Robinson Williams.

The chief needs of the department are: such additions to the teaching staff as the increasing number of graduate students requires; and a special appropriation for graduate work in the summer session.

Mechanical and Electrical Engineering.—Particularly valuable to all the engineering students of the University was the series of eight lectures given during the second half-year, January to May, 1916, as a part of the course in Gas Engineering, so generously supported by the Pacific Coast Gas Association. The loyalty of this Association to the University of California is indicated by the fact that all but one of these eight lectures were given by members of the Association. These lectures are listed on pages 325-326.

The number of students enrolled in the College of Mechanics is being consistently maintained at approximately 350. The number of graduate students is increasing, however, some of whom are taking advanced undergraduate courses, but there are also a number of candidates for the Master's Degree, and the degrees of Mechanical Engineer, Electrical Engineer, and Doctor of Philosophy. The work of the men to whom were awarded the two John W. Mackay, Jr., Fellowships in Electrical Engineering for 1915-16, maintained the high order of research results which has been established during recent years. New and more accurate methods of measuring very high frequency alternating currents by the oscillograph were completely worked out during the year.

The present Mechanical and Electrical Engineering building is entirely inadequate. The space available for Mechanical Engineering Laboratories, with the exception of Hydraulics, is limited to three small rooms. The twenty-five year old equipment of the Wood and Iron Shops is inferior to the corresponding machines and apparatus in any technical high school of California. The only place for the books of the Department library for the use of students is in the office of the head of the Department, and the resulting constant confusion is becoming more and more intolerable. New courses should be established in Marine Engineering and Naval Architecture, and unless Engineering in general and Mechanical Engineering in particular is deemed worthy of new and adequate quarters in a modern, new building, the University of California will be hopelessly outclassed by more than a dozen institutions in the United States.

Military Science and Tactics.—There has been no change in the organization of the University Cadets during the year. The courses of instruction in the department were divided into lower division and upper division courses to correspond with the practice in all departments. No other change in courses was made. The work of the University Cadets has been satisfactory, especially during the second semester. In 1915 the University was again assigned a place on the War Department's list of "distinguished colleges." Six University Cadets attended the Students' Military Camp at the Presidio of San Francisco, California, in July and August, 1915. The whole body of University Cadets is more efficient by reason of the work of the twenty students of the University, who have attended one or more of these camps first established in 1913. Indirectly much good has come to the department from these camps even though so few students of the University have attended them. The total number of students enrolled in the department during the year was 1589, 73 less than the preceding year; the maximum strength of the regiment was 1415, on September 8th, 100 less than last year; the minimum strength, 1247, on May 1st, 68 less than last year. The work of the Instructor, the Assistants, Clerk and Armorers has been satisfactory throughout the year.

Mining and Metallurgy.—The vacancy in the chair of mining was temporarily filled by renewing an arrangement with Professor C. E. Van Barneveld whereby was secured part of his time during the first half-year and the whole of his time during the second half-year. Associate Professor W. S. Weeks, appointed in the place of Professor E. B. Durham, resigned, assumed his duties at the opening of the academic year. Professor A. C. Lawson continued to act as head of the department and Dean of the College of Mining.

A notable addition to the curriculum during the past year was the establishment of a course in Petroleum Engineering. The United States Bureau of Mines, authorized by Congress to establish a number of stations throughout the country at the more important mining schools, in the fall of 1915 established such a station in the Hearst Memorial Mining Building known as the Berkeley Station. A staff of scientific men is here maintained by the Federal Government, and it has become possible thereby for the University to benefit greatly through co-operation with the Mining Bureau in its investigation of various scientific problems connected with the mining industry. At present the problem of smelter fumes, of so much concern in this state, has been the object of study at this station. Mr. L. H. Duschak has been the officer at the Berkeley Station during the year.

There have been notable increases and improvements in the equipment of the department. A number of needed items were supplied through

the generosity of Mrs. Phoebe A. Hearst and Mr. F. W. Bradley. Many exhibitors at the Panama-Pacific International Exposition at the close of the Exposition gave to the University valuable exhibits of ores, models, supplies and other articles which besides forming a very welcome and important addition to the equipment of the different departments of the College of Mining will serve as a nucleus of a fine mining museum.

Toward the close of the year the driving of an adit into the hills on the east side of the Mining Building was begun for the purpose of affording proper facilities for training students and for demonstrating methods of timbering, ventilation, drilling, blasting, stoping, rescue work, etc. It is believed that the adit and the workings from it will become a valuable and important addition to the equipment of the department.

The more pressing needs of the department at the present time are (1) the equipment of an experimental mill for the treatment of small quantities of low-grade ores with the object of discovering the most economical means of extracting their contained metals, and (2) the establishment of a few fellowships for graduate students in the College of Mining for the purpose of promoting research in the fields of mining, metallurgy, economic geology, and petroleum engineering.

Music.—With the growing importance of San Francisco as a musical center and the spread of musical taste in the State, the Department feels keenly its inability to meet even the present demands of the students of the University, not to speak of its unfulfilled desire to attract talented students from a distance, a possibility which has long opened a vista of extensive development. Besides the need of the establishment of an assistant professorship, of special courses of instruction in vocal and instrumental technique, of the inauguration of a special department for the fitting of teachers of music in the public schools, and of the inauguration of a fund for concerts, both in Berkeley and under the Division of University Extension, the Department of Music calls attention to the urgent need for increased equipment in the way of musical instruments; a lecture room adapted in some measure to the size and to the special requirements of the classes in music; and to the most urgent need of all—the upbuilding of the music library, which, until from ten to twenty thousand dollars has been judiciously expended, cannot expect to form even a working basis for advanced work.

Oriental Languages.—The writing exercises in which the students are taught how to use brush and ink in painting Chinese and Japanese characters have proved an attraction for beginners. These courses will be extended to two hours a week, and their standard will be raised by including an introduction into the elements of the two languages. In the course on Chinese composition, apart from exercises in prose writing laws of versification were studied and Chinese verses composed by the

students to the satisfaction of the instructor. As a new feature a lecture course on Chinese art was given and well attended. Situated at the extreme end of the overland route to Japan and China and with a considerable Chinese and Japanese population near by, this University ought to become a center for Oriental studies. This would require a further development of the Oriental Department. It ought to be provided with a scientific journal, for which a plant of Chinese type is indispensable. The collection of Oriental books, now inadequate for carrying on serious studies, must be supplemented, and finally a museum of Oriental Art should be started. Not only would it furnish illustrative material for lectures, but also greatly facilitate researches in this most interesting field of learning. There would be workers enough, no doubt; the difficulty is to provide the necessary funds.

Palaeontology.—The University of California, taking everything into consideration, seems, of all the institutions in America, to have the largest opportunity for a satisfactory demonstration of palaeontologic principles. The department assumes that only a few students will undertake the most advanced work, but it seems desirable to offer an opportunity for every student to obtain a comprehensive view of the field under the unusually favorable conditions. Many additions to the collections of the department have increased the facilities for illustration and demonstration, but it is impossible to exhibit the present collection of wonderful material without a museum building and sufficient laboratory assistance. The present collections of the department include several million specimens, a large percentage of which could not be duplicated in other university museums. The department needs, however, three times its present exhibition and storage area and suitable cases for storage or exhibition.

The elementary undergraduate work involves both lectures and demonstration and excursion courses. The graduate and advanced undergraduate courses involve the beginnings of research, with the object in view of teaching intensive scientific study and the application of the results to the philosophy and practice of science.

During the past year collections representing vertebrates, invertebrates, and plants of much value to the department have been secured. The most notable additions were the Hemphill collection of shells and a second collection of shells obtained by purchase from Mr. Joseph Rowell, which contains materials exceedingly important for some of the palaeontologic investigations now under way on the region of Southern California. Valuable invertebrate material from West Coast formations has been gathered through Dr. Bruce Clark and many students in the department. Significant vertebrate collections have been obtained from the Miocene of the Ricardo, the Miocene of the Tehachapi, the Pliocene of San Pablo Bay, and the Miocene and Pliocene of southwestern Idaho and

eastern Oregon, while plant collections of great importance to the working out of the palaeontologic history of the West Coast have been obtained from Tertiary deposits at the southern end of the San Joaquin Valley, from the eastern foot of the Sierras near Verdi and from deposits on the western side of the Boise Range of Idaho. A number of exchanges have been made with various institutions, the most important being that with Yale University. Field work carried on by the department has had for its purpose mainly the completion of investigations already in progress. Thirty-four papers have been published or completed by the department during the year 1915-16. The department has in project wider and fuller plans for research and for further investigations.

Philosophy.—In comparison with other departments the number of students who have taken Philosophy as a major subject has been relatively small. This is largely due to the fact that courses in Philosophy do not lead directly to the teacher's certificate. However, an increasing number of students who expect to teach secondary school subjects are now taking Philosophy as their major subject, a practice that may well be encouraged in view of the many points of contact with other subjects which the courses in Philosophy, as now organized, possess. Each of the four larger divisions of philosophical instruction—Psychology, Logic, Ethics, Esthetics—comes into close touch with subjects and problems of other departments. Psychology is interested in educational theory and practice, Logic in the methods and foundation of science and mathematics, Ethics in the larger problem of social organization and economics, Esthetics touches closely the courses in English, music, and the fine arts. And the courses in the History of Philosophy appeal to students of literature, history and law. If the Department of Philosophy is to continue its high service of fostering the sense of the Universal, there is need of a central building adequate to all the increasing demands made upon it. There is immediate need of a suitable lecture room for the work in Psychology. A temporary expedient would be the enlargement of the lecture room No. 1 of the Philosophy Building, which would make it possible to hold lectures with adequate instrumental demonstrations in Experimental and Applied Psychology. The establishment of a fellowship under the joint direction of the Preston School and of the Department of Philosophy has worked to the entire satisfaction of those in charge of Psychology here. Mr. F. H. Allen, holder of the fellowship, divided his time between the Preston School and the University, with excellent results. The work in conjunction with the Medical School for the children of San Francisco has also proved particularly successful. Instruction has been given by Dr. Bridgman at the University in Berkeley and she has also worked in the children's clinic and in the Juvenile Court, and in both of these institutions she has been able to give instruction in a practical way to those who were in her courses in Berkeley. There is increased demand

for persons trained in Applied Psychology, for work in connection with the schools, the courts and the business houses, and this work of Dr. Bridgman's and the work in connection with the Preston School begins to serve the needs of supplying this demand. But more ample provisions should be made for work in Applied Psychology, not only upon the medical side but more particularly upon the side of educational psychology. In the experimental laboratory the demands upon Dr. Brown's time and energy have far exceeded what ought to be asked of him.

Physical Education for Men.—The work of the department during the past year has been marked by the radical reorganization of all its phases and by the increase in the scope of its activities. The required work in the Department of Physical Education was changed from a schedule of four classes per week throughout one year to the less exacting schedule of two classes per week throughout two years. The specific aim upon which the reorganization and the conduct of the work of the department is based is the developing of present physical, moral and, to some extent, mental efficiency, while fixing a habit of exercise which will make these qualities a permanent asset. The technical methods involved in this phase of education through the physical approach are dealt with in detail by the official Athletic Guide of this department.

The conduct of this department's work is complicated to some extent by a system of intercollegiate athletics, over which it has no control; but as it is believed that intercollegiate athletics is an invaluable stimulus to the general participation in vigorous sports, aside from its importance to the University in other ways, the department has therefore done everything in its power to co-operate with and promote the success of the Athletic Department of the Associated Students of the University of California. In the field of Freshman Intercollegiate Athletics it is most interesting to note that the freshmen during the past year were successful in football, baseball, track and crew, a success which is attributed by the coaches in the above activities as due, in part at least, to the co-operation of this department.

Mr. Wilson of the Department of Physical Education has been in charge of all intramural athletics.

This department, though somewhat embarrassed by its small faculty and the complications of reorganization, felt the need of meeting the persistent demand for theory work, and therefore outlined a full schedule of courses, making possible a major in Physical Education and the granting of a teacher's certificate in this subject.

The administrative, aesthetic, and hygienic conditions in Harmon Gymnasium during the past year were far from satisfactory, but the spirit of good will manifested everywhere made possible a very busy and interesting year's work. The department looks forward with great pleas-

ure and relief to the prospect of the modern locker system and increased floor space made possible through the recent generous appropriation by the Regents of the University. Another important thing needed by the department is a battery of handball courts.

The possibilities for good to the student body and the faculty of the University through participation in athletic sports cannot be fully realized until a much greater field area is provided than is now available. This field area should be developed on the campus if it is to be widely used by the general student body. An ideal location for such a field is to be found on the northwest corner of the University campus.

Physical Education for Women.—The energies of all members of the department have been devoted to the establishment of a consistent policy regarding student athletics of the women students. It is believed that these activities should be closely related to the department of Physical Education for Women and to the work of the University Infirmary. Educational value is considered the necessary justification of sports. The department, by furnishing from its staff coaches for the various forms of women's athletics, endeavors through supervision to develop such individual virtues as honesty and self-control, and such social virtues as altruism, loyalty, and co-operation. These educational ideals and an observation of the rules of health are looked upon as more important than turning out winning teams. The business management of their athletics rests in the hands of the students. Responding to the suggestion of the department, the women students have adopted a new basis for awarding the "C" or emblem of participation in athletics. Instead of granting this letter for participation in an intercollegiate contest, the women award it for observance of the rules of health, sportsman-like attitude, participation in at least two sports, success in making an interclass team, in addition to skill in the sport for which the letter is granted. Fewer emblems are awarded on this honor basis. In 1915 only seven "C's" were granted against thirty in 1914. The department has encouraged interclass sports and has also aided in standardizing intercollegiate competition. With the co-operation of the Stanford authorities, it has been possible to resume intercollegiate competition in basket-ball after an interval of six years under the plan proposed by the department of the University of California, by which each of the four classes at this University play the corresponding class at Stanford. This plan lessens the nervous strain attendant upon a single intercollegiate match. It also allows wide participation. This year interclass intercollegiate tennis matches were also held with Stanford, and an interclass intercollegiate rowing contest with Mills College. Little publicity has been given these contests. It is the policy of the Department of Physical Education for Women to encourage interclass rather than intercollegiate competition. In addition

to coaching student athletics, members of the department have assisted without charge in coaching the Partheneia and in teaching folk dancing and various forms of dancing to student organizations.

Three new members have been added to the staff—Miss Hagelthorn, Miss Roof, and Miss Lemon. The equipment of the department has been much improved. During the past year have been completed the Hearst Hall Annex, the Hearst Swimming Pool, and athletic field. An adequate system of administration of shower and locker facilities for the purchase and laundering of gymnasium and swimming suits and for the purchase of gymnasium shoes has been installed. The schedule of classes has been enlarged; classes are conducted daily from 8 to 12 a.m., and from 2 to 4 p.m., and students' sports are coached from 4 to 6 p.m. As student interest in outdoor sports develops it becomes evident that the play space at Hearst Hall Athletic Field is inadequate. This limits the out-of-door work of the department.

The Hearst Swimming Pool was open during the past year 163 days, from August 17 to December 7, 1915, and from February 16 to May 12, 1916. Its use is limited by the low temperature of the water during the winter. An attempt is made to keep the water at normal temperature. During the past year the pool has been used by 8692 students; 3608 of these are freshmen, all of whom are subject to the swimming requirement of the department which provides that ability to swim 50 yards is a part of the regular work in physical education. A vigilant and careful life guard is employed to prevent accidents, and through the Infirmary health conditions at the swimming pool are carefully supervised.

Competitive contests between sections of the freshman and sophomore classes taking regular gymnastic work have proved successful. There is noticeable increase in the number of upper classmen electing work under the department. Many of these wish special professional training in corrective gymnastics, in the organization of playground and recreation work or in the teaching of physical education. Courses are gradually being added to meet the needs of these upper classmen, and in co-operation with the Department of Education it is hoped that the continued demands from the state for physical education and recreation workers can be met and eventually some influence may be exerted upon the standard of physical education work in the high schools. The department feels it necessary first, however, to attend to the needs of the lower vision students.

Physics.—Advanced work in the department of physics has grown *ri passu* with increase of graduate study in the University, and this has made felt the need for additional accommodation for graduate students. One way of securing this would be the revival of the plan for tending the top floor of South Hall to an equal area with the lower
ors.

Five public evening lectures have been given by members of the department during the past year, two by Professor Minor on "The Nature of Optical Images" and "Modern Spectacle Lenses," one by Mr. Roop on "Water Waves," and two by Dr. Jones on "Electrical Discharge through Gases" and "Cathode Rays." At the fortnightly department meetings papers have been presented by various members of the staff.

Political Science.—The increase of enrollment in the Department of Political Science has been constant, and the number of graduate students who have chosen the field of government for advanced study this last year has been encouraging to the department. An average of 720 students took work in the various courses offered during the year. There were twenty graduate students, six of whom were candidates for the Doctor's degree, ten of the Master's degree, and three for the high school teachers' recommendation.

During the last half of the year Professor Barrows was absent on sabbatical leave, and after visiting Washington during the latter part of the congressional session and also attending as a delegate at the Pan-American Congress he went to Europe on invitation from the Commission for Relief in Belgium to assist in the work in that country. During his absence the University was fortunate in securing Professor Payson J. Treat, of Stanford University, to conduct a course in the Far East and also a graduate seminar in the same subject.

Public Speaking.—In the first year of its existence as a separate department the Department of Public Speaking has carried on its work somewhat experimentally. There has been a marked increase in enrollment over that of previous years in courses in public speaking. The total enrollment for the year 1915-16 was 1160 students.

During the past ten years the average yearly enrollment in courses dealing with public speaking has been 578. The average yearly enrollment during the first five years of this period was 347. Thus the enrollment of 1160 for 1915-16 represents an increase of 233 per cent over the average enrollment for the first five years and of 337 per cent over the enrollment for 1906-07. It is interesting to note that during this period the total university enrollment increased about 100 per cent. This evidences the growth in interest in subjects dealt with by the Department of Public Speaking.

The courses given by the department deal with different aspects of the preparation and delivery of the various forms of oral discourse. One branch of the work lays emphasis upon the organization of ideas and the expression of thought. The other branch deals more with the interpretative phases of public speaking. This department lends its aid and cooperation to the various activities of the students, such as the debating and the public production of plays. Among the problems confronting this as a new department are: a plan for thorough co-operation with oth

departments of the University, particularly the Department of English; a more complete co-ordination of courses in public speaking, in order that no phase of the subject may be over-emphasized or neglected; plans for a teacher's course in public speaking; and the project of a Little Theatre on the campus for the production of student plays.

Romanic Languages.—The Department was especially gratified by the presence at the University of Professor Adolfo Bonilla of Madrid, who was incorporated into the Spanish faculty during the summer session. The lectures of this noted scholar were not only a great stimulus to the study of Spanish in this State, but his presence redounded greatly to the honor of the University throughout the country. His course was attended by teachers from every part of California and the West. The coming of Professor Bonilla was made possible by the generosity of Mr. J. C. Cebrian of San Francisco, the munificent benefactor of the University Library.

The chief problem of the department still remains the excessive size of the Lower Division classes. It is the conviction of the department that the only hope of improving the teaching of modern languages in our colleges lies in the exclusion of all Elementary work (beginners' courses) from college curricula. The work done, notably in our Freshman courses, must at some future day—it is hoped not too distant—be done in the intermediate and High Schools.

Inasmuch as the staff must devote by far the greater part of its time to Lower Division teaching, the amount and quality of *Upper Division* work is bound to suffer. But the Department hopes to increase its facilities notably for prospective teachers, by offering more and more thoroughgoing training in historical grammar, phonetics, syntax, etc., as well as a more comprehensive survey of the literature.

To continue its more intimate relations with the California schools, the Department has printed for the State Association of Romanic Language Teachers a revised and completely rewritten edition of the "Four Years' Course in French and Spanish."

Through the death of Mr. C. S. H. Howard, for many years an instructor in French and Spanish, the Department has lost one of its best loved members. Mr. Howard was not only an excellent teacher, but also the personal friend of all who were privileged to take part in his classes. Mrs. Greenleaf, whose husband was appointed to a post in the University of Wisconsin, also ceases to be a member of this Department, to its most profound regret.

Slavic Languages.—The Slavic department has shared in the general prosperity of the University. The following courses were given during the year: Elementary Russian, Second-year Russian, Third-year Russian, Russian Conversation (by Mr. Postnikov), Elementary Bohemian, Second-

year Bohemian, Russian Novelists (lecture course), Slavic Literature (lecture course). The total enrollment in all courses for the year was 56, divided equally between language and lecture courses. These figures represent a distinct advance on any previous year; the largest previous total for the language courses has been 15. The attendance on the lecture courses has slightly declined; this is probably due mainly to the new teachers' certificate requirements, which have tended to diminish the registration in free elective courses all through the University. The enthusiasm of the students for their work, and their general friendly spirit, have been the best ever known in the department. Early in the present term the students in the language courses organized of their own initiative a Slavic Society, which has held meetings every three weeks, and which has cultivated comradeship among the students. There seems to be an increased interest in Slavic subjects all through the country, of which this work at the University is a very minute symptom.

Zoology.—The department was handicapped by the absence of Professor Kofoid on Sabbatical leave, and by the fact that Professor Holmes was compelled, through illness, to take leave of absence. Professor Gates, appointed to fill the place for the year, has rendered excellent service. Admirable spirit has been shown by Dr. Long and by Mr. Barrows in electing a far heavier proportion of teaching than was their due share.

Total registration for the year has risen from 1100 to more than 1200 showing a normal increase which has been characteristic of the past few years. The largest increase is shown in the first year of Zoology and in Zoology 10. The spirit among the students has been excellent and the character of work high. Five of the students who have done major work in zoology were elected to Phi Beta Kappa.

At present the most difficult problem on the side of teaching is Zoology 1A. The efficiency of this course has been decreased by a remote and poorly equipped lecture room, by overcrowded laboratories, and by a lack of unification in the course.

It is the hope that within a year or two teaching can be so adjusted without losing any of its effectiveness, as to give much greater concentration of time for work of a graduate and research nature. Probably the greatest need on the side of research is the addition of an animal house where animals under controlled conditions could be studied. Such a vivarium should be equipped with salt and fresh water and provide with rooms for a control of temperature.

Professor Kofoid's trip to India is for the purpose of making large collections of parasites which up to the present time have been little known. Dr. Gates has finished important papers during the year. D

Long plans a continuation of his work through the summer and for the coming academic year in the anatomical laboratory with Dr. Evans. By the end of the summer Dr. Daniel contemplates the completion of his book on the Elasmobranch fishes, on which he has been working at the Scripps Institution for the past four summers. There are at present in the Department of Zoology fourteen candidates looking forward towards the doctorate. Nine students have submitted acceptable theses for the Master's degree.

ALUMNI SECRETARY

BERKELEY, July 1, 1916.

To the President of the University,

SIR: The annual report of the secretary of the California Alumni Association for the year ending June 30, 1916, herewith is presented.

The past year has been a period of intensive preparation. The management of the Secretary's office has been reorganized, the publication of the Association has been remodelled into the *California Alumni Fortnightly*, the active enrollment has been tripled, the fourth edition of the *Directory of Graduates* has been compiled, and a plan has been set in motion to replace the dormant alumni clubs with energetic units in the numerous centers throughout the country. The value of the preparation will be determined, naturally, as the individual purposes are carried to completion.

Including the graduates of the present year, the University has conferred 13,950 degrees. Of these 8,890 are the bachelor degrees, given for the completion of the regular four-year course in the Berkeley departments; the number of master degrees conferred is 1076; the doctors of philosophy total 148; and the juris doctors, 124. The higher degrees in architecture and in public health total 11; the honorary graduates number 58. In the San Francisco and Los Angeles departments 3643 degrees have been conferred, the pharmacists leading with a total of 954. The persons who have received two or more degrees from the University number 1244. Deducting this figure from 13,950 the total 12,706

is reached, representing the number of persons holding one or more degrees. With the deceased graduates numbering 880, the total number of living alumni is 11,826.

In an alumni body of over eleven thousand persons, at least six thousand names should be actively enrolled in the Association. In June, 1915, there were 1,302 members; in June, 1916, there were 2,905 enrolled.

The publication of a weekly newspaper was discontinued on January 1. *The California Alumni Fortnightly*, a bi-weekly magazine, was established. It is too early to forecast the wisdom of the change. A few figures, perhaps, may be in point. For many years the former paper was published at an average loss of \$500 a year; the present paper, in the opening term of its life, produced an approximate profit of \$1039.99. As to circulation, a year ago the paid circulation of the *Alumni Weekly* was 734. Today the paid circulation of the *Fortnightly* is 2624, with a guaranteed distribution of 3150.

A word on the present income of the Association may have a bearing on the possibilities of the future. The collections are confined to a two dollar yearly assessment, covering membership and subscription. A summary which shows, by a comparison of each month, the collections during the fiscal years, since 1910-11, is noteworthy in several particulars. In 1910-11, the total income was \$1246; in the next year, \$1208; in 1912-13, it was \$1099; in the next, \$1232; in the last year, \$1546; and in the current year (to May 30) it was \$4624.18. In connection with this an interesting feature is the collections during the month of May, 1916. Between 1910 and 1915 the collections for the May month averaged \$127. The total receipts for May, 1916, were \$2179.97.

The treasurer's report shows that the amount of the expenditures for the year has been exceptional. But the money, for the most part, has been put into permanent things. The effort in this direction has been aided materially through the generous financial co-operation of the Regents of the University. For the development of the Association the Regents appropriated \$3000 in 1915-16, and have included in the 1916-17 budget a like amount.

A committee is at work on the proposal to establish an information and employment exchange in connection with the general offices of the Association. This bureau, if the appropriate plans are devised, will be the medium through which the employers may reach the graduates as they leave the University and through which the graduates may be brought in touch with the prospective occupations. The service which a bureau of this type will give is a service which the Association must perform.

The *Directory*, for which the compilation is complete, is the preparation for the district council plan. When all the graduates and the majority of the former students are accurately located, the state-wide organization into local districts will be perfected. Each district is to have a council, dependent on the central council, which meets every three weeks at the University. The district council scheme has been submitted to several localities and has been received with enthusiasm. The details of the plan are attractive and offer a solution to the problem that is ever-present in the administration of the local independent club. For example, San Joaquin County, San Diego County, Marin County, Solano County, and Los Angeles have been visited in the interest of the district scheme. When there is work to do there is active organization. The framework of organization is being built because there are great tasks ahead.

The custom for the Bay counties alumni to hold a Charter Day dinner was inaugurated last March, when 350 men and women were hosts to President Vincent, of Minnesota, the Charter Day speaker. The usual rally banquets were held on the eve of the Big Game. The women met in Berkeley; the men, numbering 320, dined in San Francisco. On Commencement Day the customary luncheon was given in Faculty Glade. Over 480 alumni were present. The policy for making the influence of alumni organizations felt in the state at large brought out a plan to hold the 1916 annual meeting of the Association at Kearney Park, the University estate in Fresno County, on June 3. A special Pullman train carried the Bay counties delegation of 150 persons to the festivities, while a total of nearly 1000 alumni registered at the Park. The officers of the Association for the

year of 1916-17, elected at the annual meeting, are: Oscar Sutro, '94, president; W. E. Creed, '98, first vice-president; S. M. Haskins, '93, second vice-president; Harvey Roney, '15, secretary; and R. G. Sproul, '13, treasurer. The councillors are: Frank Otis, '73, S. L. Rawlings, '99, M. C. Lynch, '06, C. E. Hall, '10, Douglas Brookman, '10, S. C. Irving, '79, C. W. Merrill, '91, W. H. Waste, '91, Miss Margaret Hayne, '08, and Mrs. Rose Gardner Marx, '11. For the two places on the board of administration of the LeConte Memorial Fellowship, T. M. Putnam, '97, vice W. E. Ritter, resigned, and F. P. Griffiths, '06, vice C. S. Green, '86, whose term expired June 30, 1916, were elected. J. N. LeConte, whose term expired June 30, 1916, was re-elected.

Respectfully submitted,

HARVEY RONEY,

Secretary of the Association.

APPOINTMENT SECRETARY

BERKELEY, July 1, 1916.

To the President of the University,

SIR: I have the honor to submit herewith my report, covering the period from June 30, 1915, to July 1, 1916.

Number of candidates for teachers' positions registered	1,981
Number of calls for teachers	1,261
Sets of recommendations sent out	4,231
Communications sent out	15,091
Positions filled	55
Aggregate salary of 345 positions for which returns are complete....	\$389,56

Respectfully submitted,

MAY L. CHENEY,

Appointment Secretary.

SAN FRANCISCO INSTITUTE OF ART

SAN FRANCISCO, July 1, 1916.

To the President of the University,

SIR: I have the honor to submit the following report of the San Francisco Art Association (San Francisco Institute of Art) for the year 1915-16.

The record shows a continuance of those activities which have identified the Art Association with the development of art in the West, and the successful participation in civic activities.

The usual exhibitions have been maintained in the galleries of the Association and information on general topics of art have been given to the public, the galleries being open to the public without charge throughout the year.

The Palace of Fine Arts remaining from the Panama-Pacific International Exposition has been given in charge to the San Francisco Art Association. This has been the result of an active campaign by the Association, in which it was supported by civic, social and educational organizations of the State. The preservation now permits the housing of objects of art in the galleries of the Exposition, bringing similar advantages to the community to those enjoyed by Eastern cities.

To further facilitate the acquiring of the Palace of Fine Arts, the various artists' organizations amalgamated with the San Francisco Art Association. New by-laws were adopted to serve the needs of the combined organizations, the name of the school being changed from the California School of Design to that of the California School of Fine Arts.

The California School of Fine Arts conducted by the Art Association is in session nine months in the year, this period

being divided into two terms. The attendance has steadily increased, necessitating additional subjects to the curriculum, and the adding of instructors to the faculty staff. At present there are twelve instructors in the faculty.

The high standard of the school has been fully maintained. In the annual competition nationally conducted by the Art Students' League of New York, the Art Association's school was awarded more scholarships than those received by any other competitor.

The exhibition at the end of the school year was large, of interesting variety and was universally commended. In addition to the academical art studies, the school directors have in the last years added courses of applied and technical arts, enabling students to train for those branches of the industries requiring artist-artisans.

The Art Association grants annually twelve scholarships, as a reward of merit in the school and to assist young persons of talent who are unable to pay the required fee.

The Paris medal awarded each year entitling the recipient to study in the Julian Academy of Paris has been temporarily discontinued, owing to the European state of war, but will be again continued as soon as possible.

In addition to the above activities the Art Association is planning to assist the educational system of the city in its school arts, particularly by the granting of scholarships to students of the public schools, permitting them to further their art studies.

The increased attendance and development of the school necessitating individual attention, the Board of Directors established the office of Director of the School, appointing Pedro Lemos to that position.

Respectfully submitted,

PEDRO J. LEMOS,

Director of the Institute.

COLLEGE OF DENTISTRY

SAN FRANCISCO, July 1, 1916.

To the President of the University,

SIR: I have the honor to present the following report of the activities of the dental school during the past year.

The interest which the medical profession has taken in the science and practice of dentistry has had a very stimulating effect upon all dental educational institutions, inspiring the teachers with a desire to improve their instruction and more closely co-ordinate their work with medical instruction wherever possible, and inculcating a desire in the minds of young men with professional aspirations to achieve special distinction in this field of medical science.

The laity likewise has been made cognizant of the progress of dental science through the press and through the general propaganda in matters pertaining to the health of the individual and community. This has stimulated a demand for better dentistry, which, in turn, has increased the enrollment in all dental schools.

The duty of the school in supplying the State with dental graduates possessed of the proper professional qualifications and good judgment cannot be overlooked, and the growth of the school should be in direct proportion to the needs of the State together with those states immediately adjacent to California, which do not provide dental instruction, and foreign territory bordering on the Pacific Ocean.

The increased enrollment in 1915-16 crowded the infirmary and laboratories beyond their utmost capacity and necessitated enlargement and equipping the present quarters, which will be provided for by an appropriation of \$30,000 by the Regents. This will give ample room for the session of 1916-17. Subsequent

needs can only be estimated and will be materially influenced by the lengthening of the course to four years, beginning in 1917-18, and by the standards which the University is maintaining in this department.

The courses of instruction are being constantly improved to meet these standards. An average of sixty per cent of the students enrolling in the first year successfully fulfill the requirements for graduation.

Frequent demands are being made upon the school for graduate instruction, but the facilities at our disposal and limited number of full time teachers qualified to give this form of instruction prevents the establishment of such courses at the present time. In part the demand is being met by offering courses through the medium of a dental institute in January of each year. Instruction by the best obtainable authorities in special fields in dental science is offered. During the present year, Dr. Arthur D. Black, Professor of Operative Dentistry and Dental Pathology of the Northwestern University Dental School gave a course of lectures and clinics on the Pathology and Treatment of the lesions of the Peridental Membrane. So much have these courses of lectures been appreciated by the practitioners of dentistry on the Pacific Coast that the plan, as instituted in this school and offered in Los Angeles and San Francisco, has been adopted in Oregon and Washington, and the same course of lectures is now offered in Portland and Seattle also, thus including the four principal cities on the Coast and the contiguous territory.

Another demand is being made upon the school for courses of instruction to young women in mouth hygiene and oral prophylaxis. This correlates in part the training which is offered in the training school for nurses in the Medical School, except that the instruction would equip those enrolled with special qualifications to serve as assistants in dental offices, and as dental hygienists in public school clinics, rendering only such service in the latter instance, as is ordinarily spoken of as "cleaning the teeth." The real value of this service is in teaching the children by precept and practice the importance of mouth hygiene and

thereby rendering them less susceptible to the ravages of other diseases which are traceable either directly or indirectly to unclean and unhealthy mouths. The inauguration of such a course would improve the clinical service in our school, provide more capable assistants for dentists in private practice, and qualify such women for more lucrative employment. The dental laws in several states now provide for, and several dental schools have inaugurated, such courses of instruction.

Of the changes in the faculty by resignation, none is more to be regretted than the voluntary retirement of J. B. Tufts, D.D.S., Professor of Dental Pathology and Therapeutics, whose efforts to maintain high standards in the character of service rendered by the dental student in this field of practice is worthy of special commendation, and Chas. B. Porter, D.D.S., Instructor in Dental Porcelain, whose loyal interest in the school has been marked by many personal sacrifices during many years' association with the faculty.

The following men received appointments on our teaching staff:

- F. V. Simonton, D.D.S., Instructor in Operative Technic.
- H. J. Bruhns, D.D.S., Clinical Instructor in Operative Dentistry.
- Chas. B. Musante, D.D.S., Instructor in Operative Technic.
- Wm. H. Hanford, D.D.S., Instructor in Operative Technic.
- Chas. S. McCowen, D.D.S., Clinical Instructor in Orthodontics.
- Earl L. McGlashan, D.D.S., Instructor in Orthodontics.
- Wm. C. Wright, D.D.S., Clinical Instructor in Extracting.

The Dental Clinic has proved inadequate to meet the demands made upon it by the public for dental service, and in addition thereto the school has continued to furnish dental service to the San Francisco Nursery for Homeless Children as an out-patient department. From eighty to ninety children have been cared for in this manner in this institution annually.

The Forsyth Dental Infirmary at Boston has honored the school by appointing on its Honorary Advisory Board a member of our faculty.

Respectfully submitted,

GUY S. MILLBERRY,
Dean.

EXAMINER OF SCHOOLS

BERKELEY, July 1, 1916.

To the President of the University,

SIR: As Examiner of Schools, I have the honor to submit herewith my report for the year 1915-16.

In the report of last year, the several phases of the duties of the Examiner as such were set forth in some detail. In brief, they were summed up under the four headings: (a) personal work in the field as Examiner and visitor of schools; (b) general oversight and direction of the work of the University school visitors; (c) statistical study of the records of the freshmen, with a view of determining the efficiency of the schools from this viewpoint; (d) the correspondence connected with these various fields of activity.

In the present report, the discussion will deal in the main with these same topics, since no radical change has been made during the year.

(a) For the past several years, the Examiner has visited in person about eighty-five schools annually, spending at least one full day in each. This annual average has been maintained during the year just closed, in spite of the fact that the steadily increasing office demands connected with the work have necessitated devoting to them decidedly more time than ever before. This average was maintained by beginning a week earlier than usual and continuing somewhat later in the term.

It is the judgment of the writer, concurred in by the Committee on Schools, that, in view of the steady increase in the number of secondary schools which the University is required to visit for accrediting purposes, the number above named as visited annually is too small a proportion of the whole number of schools.

When the writer first undertook this work, in 1903, the total number of schools applying for accrediting was 153; today it is 373, and is increasing yearly. But even this great increase does not begin to tell the whole story; nor does it furnish any accurate measure for determining the increased labor involved in keeping the University in vital touch with the secondary schools, both public and private, of the State. For along with this increase in their numbers, the schools themselves have more than doubled in size, as regards the number of both pupils and teachers. In 1903-04 the number of pupils enrolled in the public high schools of the State was 21,450; in 1915-16 it was 95,400—an increase of 335 per cent—not to mention the private schools. Moreover, the past decade has seen a rapid and widespread introduction of new subjects of instruction into the curriculum of the schools. This has necessitated the formation of many additional classes and the installation of much new and unusual equipment. At the same time, there has been little, if any, proportional reduction in the number of classes in the older or standard subjects; this means that there has actually been a great increase in the number of these classes, owing to the great increase in the number of pupils.

As a result of these varying conditions, while ten years ago a single day sufficed reasonably well for a person to get an adequate idea of the equipment and work of any one of the vast majority of schools, today, to do equal justice to almost any one of the majority would require from two days to a week or more.

So great an expansion of the secondary schools in these various respects has come about since a dozen years ago that, while then a person could hope to get a fairly adequate acquaintance with all the schools in two or three years, at present, one now spending but half a year in the work of school visiting could never get such an acquaintance; for it would require five years to get around even, on the original, but now quite inadequate plan of a day to a school; and in the meanwhile the growth of the schools in all lines will have continued. In the case of the larger and long established schools, this situation, from the consideration of mere accrediting, is not especially serious, par-

ticularly since nearly all such schools are annually represented in the University by a considerable number of their recent graduates. In the case of the smaller schools, however, and especially of the more recently organized, it is highly important, if the accrediting of schools is to be fairly and intelligently done, that the general examination should cover the field more frequently and more thoroughly than has been possible in recent years.

In view of the above mentioned considerations and others of like purport, I strongly recommend—and in this recommendation the Committee on Schools heartily concurs—that an assistant general examiner of schools be appointed at the earliest possible opportunity. Such assistant examiner might very profitably spend both semesters in visiting the schools for the first two or three years. After that he should, perhaps, devote but one half year to this work; during the other half year, he might give instruction in some department of the University.

In the event of the making of such appointment, I should recommend the continuance, to a considerable extent, of the present method of visiting schools by members of the Committee on Schools, with such other assistance as might seem advisable. This visiting by members of the committee and assistants should, however, in my judgment, take on a somewhat less general character than is at present customary. To make the changes herein recommended would, I am confident, result in a great and lasting benefit to the University in its relations with the schools of the State.

(b) This year the Committee on Schools, in addition to the usual visiting of all secondary schools, undertook, for the first time, a similar task in connection with the “junior colleges” of the State. The original intention was to visit, by authorized representatives of the various University departments, each class in all of the corresponding subjects in each of the “junior colleges,” both public and private. As it turned out, however, our operations were confined almost exclusively to the public institutions. In the case of these, the work was done comprehensively and thoroughly. Enough men were sent to nearly every one of these “colleges” to visit each of the main subjects of instruction represented.

The Committee on Credentials, in the interest of whose labor especially this work was undertaken, has issued a brief report in which certain valuable data and conclusions concerning the result of the experiment are set forth.

The Committee on Schools is unanimous in its opinion that this initial effort has far more than justified itself, and is preparing to repeat the "junior college" visiting the coming year.

Another innovation this year was the making of the list of accredited schools in two divisions. There is need of defining further and determining more specifically the characteristics of each division. Roughly, Division B at present replaces what has been for some years the so-called supplementary list of accredited schools, which has now been abolished.

(c) The customary statistical study of the records of the freshmen class has been made. The results are printed in a separate bulletin.

The most noteworthy feature of this work for the current year appears as a rather sharp falling off in the general scholarship average. This holds true for students both from California and non-California schools. Previously for some years there had been steady improvement.

In the absence of any discoverable cause for this in the schools or in the University, I am inclined to attribute it to the disturbing influences of the Panama-Pacific Exposition.

(d) The office work of the Examiner has been considerably facilitated this year by the efficient stenographic service furnished by the office of administration. It is, however, very much hampered by the lack of a separate office. In order, therefore, to facilitate the work of school visiting in all its bearings, including especially the correspondence, which grows heavier yearly, and the Schools Committee work, which grows more important each semester, I respectfully urge that a special office be provided for the Examiner of Schools. The Committee on Schools strongly endorses this recommendation.

Respectfully submitted,

W. S. THOMAS,

Examiner of Schools.

UNIVERSITY EXTENSION DIVISION

BERKELEY, July 1, 1916.

To the President of the University,

SIR: I have the honor of presenting herewith the third annual report of the University Extension Division:

The Idea.—The conception of University Extension upon which this division was organized in August, 1913, is that of utilizing to the fullest extent all the educational resources and facilities of the University for the advantage of the people of the State. This conception naturally involved the extension to persons not in residence at the University of an opportunity to take by correspondence, in extension classes and by lectures, the courses offered to resident students. But it involved much more than that. The history of university extension in this country had plainly shown that the demand for it comes not alone from those who are looking forward to attending a university and taking a degree, or from those who, having graduated from a university, wish to continue their studies for the sake of culture but that it comes also and chiefly from persons having no expectation of attending a university and who are merely desirous of self-improvement and educational assistance in their daily occupations. Hence the range of university instruction, it was thought, must from time to time be enlarged, particularly by the addition of vocational courses, to correspond with the practical needs of the people; and an extension division, being necessarily in close touch with the public and feeling the constant pressure of its educational demands, may properly serve as a means for initiating this enlargement. Again, a university is

n institution for the discovery of truth, and it must necessarily possess a great store of knowledge. Any new truth discovered and the knowledge already accumulated must have some immediate or remote social value, otherwise a university would have no social reason for being. To distribute accumulated knowledge and to make known the results of research were therefore looked upon as a public service. Every university does this more or less. But none can fulfill this duty without an organized means of doing so. Knowledge may be distributed by formal instruction and by formal publications designed primarily for scholars, but if it is to be used by the people generally it must be presented in such a manner as to awaken general interest; that is to say, by the less formal methods of presentation, discussion, public lectures, bulletins, pictures, exhibits, etc., all matters which may well be organized and administered by a university extension division.

It was seen then at the beginning that university extension may legitimately have many forms and act through many channels. It may undertake any necessary educational service which a university is better prepared to render than any other educational agency, or for which it is the logical agency from the viewpoint of the economy of public money. It may, indeed it should, initiate desirable forms of educational activity logically belonging to other agencies, but which for one reason or another they have neglected, turning over these activities to such agencies whenever they may be induced to take charge of them. In short the broad idea of university extension embodied in this division implies no specific limits to its functions save those that are determined by expediency and by the financial resources available for carrying on its work.

Organization.—To carry out this idea so far as the funds available at the time would permit, six bureaus were established, namely: Class Instruction, Correspondence Instruction, Lectures, Public Discussion, Municipal Reference, and Information; the last two being united under the direction of one secretary. During the past year another bureau has been established, a Bureau of Visual Instruction.

Personnel.—The administrative and instructional force of the division has grown rapidly, as rapidly as the means available would permit. But the demands upon the division for the various kinds of service offered have grown still more rapidly, so that inability to supply these demands, either on account of an insufficient number of instructors or lack of office help, is a constant condition. The number of secretaries, instructors, readers, stenographers and clerks employed in this division varies from time to time, but the general situation is indicated by the following outline of the different bureaus established and the number of persons ordinarily employed in each in carrying on its work.

OFFICE ADMINISTRATION: Director, office manager, bookkeeper, stenographer, mailing clerk.

BUREAUS OF INSTRUCTION:

Correspondence Instruction.—Secretary, 41 instructors, 14 readers, 2 stenographers, 1 clerk.

Class Instruction.—Secretary, 38 instructors, 2 readers, 3 stenographers.

Lectures.—Director, 13 lecturers, 1 stenographer.

BUREAUS OF PUBLIC SERVICE:

Public Discussion.—Secretary, stenographer.

Municipal Reference.—Secretary, stenographer.

Information.—Secretary, stenographer.

Visual Instruction.—Secretary, assistant, stenographer.

Resignations.—During the year twelve members of our force resigned—nine stenographers, two instructors, and one secretary. Mr. J. H. Quire, secretary of the Bureaus of Municipal Reference and Information was called to a responsible position in the State Library; Dr. Aurelia Reinhardt, lecturer, to the Presidency Mills College, Oakland; and Mr. Clyde Blanchard, instructor in charge of Business Courses, to a position in a school for private secretaries in San Francisco. None of these positions has been filled for the reason that we have so far used up the appropriation for the present biennium that we are financially unable to fill them. It is obviously to the interest of the division to keep in its employ persons who have proven themselves competent secretaries, lecturers, instructors or stenographers, but only an adequate appropriation will enable us to do so.

Growth.—The growth of this division both in respect to its proportions as an administrative organization and in respect to its work throughout the State, has been very rapid. At the beginning it occupied as an office a small room with a floor space of about three hundred and seventy-five square feet. Today the floor space occupied by its administrative officers, readers, and stenographers is four thousand two hundred and forty square feet. In the work of each bureau there has been advancement. During the past year the number of University Extension classes exceeded the number of the preceding year by eighty-two, the enrollments by one thousand two hundred and forty-five. The number of courses of lectures was sixty-two, twenty more than in the year before. During the year there were two thousand two hundred and fourteen enrollments in the Bureau of Correspondence Instruction, making the total enrollment on June 30, 1916, five thousand six hundred and thirteen; and so in the work of other bureaus there has been a gratifying increase in the number of persons to whom a service has been rendered. Taking it all in all this division has rendered some form of assistance, great or small, during the past year to more than three hundred thousand people. The kind and amount of this service appear in the following detailed account of the work of each bureau.

THE BUREAU OF CLASS INSTRUCTION

In this bureau two hundred and thirty classes, in forty-seven subjects, with an enrollment of three thousand and thirteen, were conducted during the past year. Forty-seven courses were given and thirty-eight instructors were employed. The actual number of students enrolled was one thousand nine hundred and three, an increase over last year of eight hundred and eight. Of these, one thousand three hundred and fifty-eight were men and five hundred and forty-five were women. Classes were conducted in the following cities: Oakland, San Francisco, Richmond, San Rafael, Petaluma, Sacramento, Oroville and San Jose. Most of the classes were held in San Francisco and in Oakland. The total income from these classes was \$13,333.50, an increase over the preceding year of \$5,111.17. All of this amount was em-

ployed of course in helping to support this and other bureaus of this division.

Analysis of Enrollments.—The enrollments in the Bureau of Class Instruction were distributed as follows: in business subjects, 1148; in languages, 817; in technical subjects, 591; in English, 360; in mathematics, 83; in miscellaneous subjects, 145. These figures make a total of 3144. But 137 enrollments are duplicated in shorthand and typewriting, five were deferred and one was cancelled, thus reducing the total to the amount previously given, namely, 3013. Business courses, then, were the most popular, the languages being second and technical courses third.

In these University Extension classes 1282 students enrolled for one course; 354 for 2; 100 for 3; 98 for 4; 25 for 5; 11 for 6; 13 for 7; 9 for 8; 2 for 9; 4 for 10; 2 for 11; 1 for 12; 1 for 13; 1 for 14. In the preceding year the largest number of subjects for which one student enrolled was seven.

RESUMÉ OF THE WORK OF THE BUREAU OF CLASS INSTRUCTION

Number of courses offered	47	
Number of instructors employed	38	
Number of classes:		
In San Francisco	180	
In Oakland	44	
In other places	7	
Total	231	
Number of enrollments		3,013
Number of students:		
Men	1,358	
Women	545	
Total	1,903	
Average attendance		83%
Inquiries received		5,474
Outgoing mail:		
Letters	11,416	
Postal cards	7216	
Class schedules	26,200	
Bulletins	5,000	

Difficulties.—The work of this bureau has been performed under particularly difficult circumstances. At the beginning of the year popular interest in the great Exposition interfered appreciably with the organization of classes. It was difficult also to obtain suitable accommodations for classes. In San Francisco three small rooms on the fifth floor of the Underwood Building, 25 Market street, were rented; one for an office, the others for class rooms. The Hastings College of the Law, then located in the same building, granted the use of three large class rooms and its library. The use of another room in the Underwood Building was donated by the Industrial Accident Commission. Classes were held also in the lecture room of the Phelan Building, kindly donated for this purpose; in the rooms of the American Institute of Banking, in the Commercial Club and in the High School of Commerce. At the beginning of the second semester extension classes were meeting in sixteen rooms in San Francisco. For the first time the work began to take on the appearance of a school. Accommodations were fairly satisfactory. Students and instructors were enthusiastic. But the Hastings College of the Law moved from the Underwood Building to its new quarters in the City Hall, making it necessary to find other places of meeting for classes containing altogether about six hundred students. For one reason or another some of these classes had to move three or four times. Only two classes in San Francisco completed the work in the rooms in which they began. It is surprising that the influence of these circumstances was not more disastrous than it was.

In Oakland the Board of Education granted the use of rooms in the Technical High School without charge except for the payment of a small sum for lighting and five dollars per month for janitor service. The Extension Division had also the use of one room in the Vocational High School and one room in the Young Women's Christian Association Building.

Classes in Technical Subjects.—Classes in technical subjects have been conducted for the past two years. The courses given include electrical theory, electric shop work, mechanics, machine shop work and automobile technology. So popular has this

branch of instruction become that there have been, within the last year, five hundred and ninety-five enrollments for courses of fifteen lessons, representing about five hundred different persons. Classes were held in San Jose, Richmond, at two places in Oakland and at four places in San Francisco.

In Oakland, San Francisco and San Jose special classes were organized to take care of the demand for instruction in elementary telephone technology. So many men in Oakland and San Francisco desired this work that it was necessary to teach two sections in each city. Other special classes were organized for employees of the Western Electric factory in Emeryville, and for those of the Pacific Gas and Electric Company in Oakland. Nine instructors were required to carry on the technical classes.

One of the most encouraging features of this work has been the cordial co-operation of boards of education, corporations and labor unions as well as individuals. In the four cities where classes have been held there has been no expense for rooms or equipment for lectures and demonstrations, because the high school authorities have given the use of their facilities. The Pacific States Telephone and Telegraph Company has organized large classes for extension instruction in three cities, deputing five of its sub-chiefs to assist in organizing and conducting the classes. The Pacific Gas and Electric Company in Oakland and San Jose has helped in every possible way and encouraged its employees to enroll. The Western Electric Company of Emeryville organized a large class and supplied many pieces of technical equipment for demonstration experiments. The Peninsula Railway, the Southern Pacific, the United Railroads of San Francisco, and several other corporations have helped in various ways. The labor union leaders in San Francisco, particularly those of the Machinists' Union, have done everything in their power to encourage the work, speaking for it both to their own organizations and to the public. We have had two classes composed almost entirely of members of the Machinists' Union, and several others with a large percentage of men reached through the unions. With their co-operation we are gradually converting many working men to the belief that night classes are a means to economic and social advancement.

With assistance from so many sources and continual encouragement from students who have completed courses and are active in urging their acquaintances to call upon the University for instruction, the prospect seems good for increasing usefulness in this branch of University Extension.

General Demand.—The experience of the past three years leaves no room for doubt concerning the popular demand for instruction in University Extension classes. This is as true in the cities about the bay as it has been shown to be true by the experience of Columbia University in New York City, by the University of Chicago in Chicago, and by the University of Minnesota in Minneapolis and St. Paul. Steps should therefore be taken to give permanency to the work by establishing in San Francisco a well-equipped evening school which should serve as the center of the University's activities there. The experience already gained in this work will be valuable when through its enlargement we are able to extend the organization of classes to other cities, particularly Los Angeles.

THE BUREAU OF CORRESPONDENCE INSTRUCTION

Courses.—During the past year 171 courses in thirty-six subjects were offered by correspondence. Thirty-three courses in seven subjects were added during the year. About half of the courses offered are for credit toward a university degree.

Enrollments.—During the year 2214 enrollments were received. Of these more were for English than for any other subject, 501 enrollments being for courses in that branch alone. Other leading subjects in the order of their numerical importance are Spanish, 354 enrollments; mathematics, 212; accounting, 158; home economics, 132; education, 123. In all, 1279 men and 780 women enrolled for courses, a total of 2060 individuals. The great majority of these are persons in middle life, who seek to improve their individual efficiency and culture by study, and who represent many vocations and industries. Persons enrolling in courses during the past year specified 110 occupations. The wide range of vocations represented would be still further ex-

tended had we data in regard to 173 persons who did not give their occupations at the time of enrolling.

Needs.—The principal needs of the Bureau of Correspondence Instruction may be summarized as follows:

1. The development and improvement of the courses.
2. The means of giving more complete information regarding courses than we can now give to persons inquiring about them.
3. The means of more complete co-operation with the State Free Library system.
4. The means of occasionally assembling students in their respective towns.

To give correspondence instruction effectively it is necessary to supply the students with lesson assignments prepared carefully and in detail. Each lesson should give the student numerous suggestions with respect to every point covered, supply him with information supplementary to what he may find in text-books and raise questions skillfully planned to stir his interest or test his knowledge. To perfect the courses offered we need a corps of instructors devoting their entire time to preparing and conducting correspondence courses. It is possible, and we should aim, to serve the student in each lesson as completely as though he were listening to a lecture and taking part in a class discussion.

We need the means of giving more complete information about courses in response to inquiries received than is now possible. On account of limited funds we have found it necessary to condense the description of courses in bulletins until many are mere brief formal announcements. While such may answer in the case of residence courses, they are insufficient with respect to correspondence courses. Each prospective student wishes to know in some detail what he is going to receive for his fee and what he may expect to learn from a given course. The only way to meet this reasonable desire is to supply announcements so explicit in content and so untechnical in style that they will give the inquirer complete information.

We have a fine opportunity to co-operate with the State Free Library system, of which the fullest advantage should be taken. Our students can obtain most of the works of reference they need through their local libraries. Effective co-operation involves the use of more clerical assistance than we have at present. When a student in California enrolls for a course by correspondence the librarian in his county, if there be one, should be notified of the fact and informed with respect to the texts that are used in the course. With our present clerical assistance this is impossible.

We need to arrange for representatives of this division to meet groups of students in their respective towns. In each of many California towns we now have several students taking courses. Could these students be brought together in groups for conference occasionally, it would be productive of much advantage for them and for us. Such meetings of students would open up avenues whereby many courses might be brought to the attention of prospective students; also the desirability of organizing University Extension centers throughout the State would be demonstrated. We should begin at the earliest possible moment to develop a system of organizing the entire State of California into districts, each one with its headquarters under the direction of the division at Berkeley, and in each a representative to enroll students, organize classes and direct other activities relating to university extension.

We need to initiate popular instruction in applied science on a comprehensive plan. This will require an instructional faculty able to combine demonstrations, lectures and correspondence instruction. There are in this State many industrial, educational, social and civic agencies whose co-operation we can secure if we can but start the work.

THE BUREAU OF LECTURES

For this bureau we have as yet no secretary, and no one can be spared from the work of other bureaus to act as organizer. Thus far the work of the bureau has been carried on by the director assisted by the secretaries of the various bureaus, particularly by the secretary of the Bureau of Class Instruction.

What has been accomplished through this bureau, then, is merely an indication of the possibilities of providing instruction and entertainment for the people of the State by means of lectures. When, by the employment of a competent secretary, organizers and sufficient clerical help, the lecture work can receive the attention it should receive, it will be easily possible to place in the State more than a hundred courses of lectures. There are more than that number of towns in California with a population of over one thousand. Now and then towns of less than a thousand population arrange for a course. This has been the case in some instances during the past year. The popular demand is for mixed courses, that is, courses including lectures, concerts, and entertainments. To meet the needs of the State the University must provide such courses, being careful to give to each a definite educational value. A comparatively small amount of money expended to organize and co-ordinate the lectures and educational entertainments of the State through this bureau, and to guarantee payment of the best talent, would save the State thousands of dollars, while at the same time the quality of instruction and the grade of entertainment could be improved.

Notwithstanding the handicap of the bureau from lack of funds and personal assistance, sixty-two lecture courses have been placed. These courses include three hundred and fifty-three lectures. The aggregate attendance upon them was sixty-three thousand nine hundred. In addition to courses of lectures, ninety-five single lectures were delivered. Upon these single lectures there was a total attendance of twenty thousand seven hundred and twenty-seven. Seventy-six towns and cities have been served by this bureau.

SUMMARY

Courses of lectures:

Number of lecture courses provided	62
Number of lectures in courses	353
Total average attendance	12,420
Aggregate attendance	63,900
Number of lecturers employed	11

Single lectures:

Number of single lectures	95
Aggregate attendance	20,727
Number of lecturers employed	15
Total number of lectures given	448
Total aggregate attendance	84,627

BUREAU OF PUBLIC DISCUSSION

The Bureau of Public Discussion devoted its attention during the past year to the further organization and supervision of the Interscholastic Public Speaking League of California.

The following statement appearing in the second annual report of the secretary of the bureau, published in May, 1916, shows the extent of the league's activities:

"Eighty-three schools representing a total enrollment of forty-five thousand students were granted membership in the league. Two found it necessary to withdraw. Twenty-seven schools entered both the Extemporaneous Speaking Section and the Debating Section. Fifty-one took part in only the contests of the Debating Section and three in only the contests of the Extemporaneous Speaking Section. Thus the membership of the Debating Section included seventy-eight high schools. The Extemporaneous Speaking Section included thirty. In the Debating Section one hundred and fifty-six debates were scheduled. Sixteen were forfeited; three were 'dual.' One hundred and thirty-seven were held. Fourteen extemporaneous speaking contests were conducted. During the past year over one thousand high school students have engaged in these speaking contests, either as members of teams, as alternates, or as participants in tryouts. The attendance at all debates approximated thirty-five thousand. The Manual Arts High School, of Los Angeles, holds the record for large attendance. Twenty-five hundred people were present at a single contest. The average attendance at all debates held at that school was fifteen hundred."

A few slight changes are to be instituted in the programme of the league for the coming year, chief among which is the establishing of four additional divisions in the Debating Section. As a result of this new arrangement, the school winning the title in each division will be represented by a single speaker in the championship contest.

Already many new schools are applying for membership, thus evincing an increasing interest in this movement. The State League idea has proved acceptable to the high schools of California. It is rapidly being recognized as a valuable contribution to secondary education in the State.

The bureau assists high schools in securing judges. At the request of the principals of the contesting schools it has furnished the number of judges desired, their expenses being paid by the local schools. These judges have been secured largely from the faculty and student body of the University.

The bureau publishes bulletins of practical value to individuals or organizations engaged in the study and discussion of public questions.

The activities of the Bureau of Public Discussion should not be confined to the supervision of the Interscholastic Public Speaking League of California. Many opportunities for practical service await it. Much can be done in the way of organizing discussion centers, debating clubs and literary societies throughout the State. There are numerous demands for additional publications bearing upon the programmes, methods of procedure and functions of such organizations. Several bulletins are nearly exhausted. These should be revised and reprinted. This bureau might well co-operate to a greater extent than is now possible with women's clubs, men's clubs, civic societies, community centers and similar organizations.

BUREAU OF MUNICIPAL REFERENCE

The Bureau of Municipal Reference has received fifty-eight inquiries requiring special investigation, in addition to the usual routine of directing city officials and civic workers to the proper state or federal officers for special information. Among the more important of these investigations were the following: The use of the preferential ballot in eastern cities, made for Santa Monica in preparing for its first election under the new system on December 7, 1915; the cost and maintenance of municipal swimming pools in California cities and certain eastern cities made for the city of Modesto; the relative cost of government in

incorporated and unincorporated small cities in California, made for the Niles Improvement Club; power used in municipal water plants, for the city of Tulare; fire alarm installations, for the city of Newman; the progress of city manager government, for the New Charter League of Alameda. A bulletin on the "City Manager Plan of Municipal Government" has been published jointly by the Bureau of Municipal Reference and the Bureau of Public Discussion.

The secretary of this bureau attended a meeting of the National Municipal League held in Dayton, Ohio, in November, 1915. Advantage was taken of the opportunity to inspect the municipal reference bureaus in the cities of Cincinnati, Chicago, and Milwaukee and the municipal reference bureaus of the University Extension Divisions in the Universities of Wisconsin and Minnesota.

Since the resignation of the secretary of this bureau its work has been practically at a standstill. Its activities cannot be renewed until a new secretary is appointed.

BUREAU OF INFORMATION

An increasing use is made of the Bureau of General Information. One hundred and ninety inquiries, most of them requiring special investigation, were handled during the year. Members of the University faculty continue to take charge of the majority of these requests and a willingness to aid in this form of extension service is increasingly noticeable.

Many people throughout the State are using the bureau as a court of last resort in settling disputes over such matters as the correct use of words, the meaning of scientific terms and the authenticity of statistical material. The decrease in the number of requests for bibliographical material indicates that the efforts to divert all such inquiries to the California State Library are proving successful. A majority of those using the bureau are residents of small towns.

BUREAU OF VISUAL INSTRUCTION

Origin and Purpose.—From the beginning we have been impressed by visual instruction as a means of promoting the work

of this division. The use of visual aids to instruction tends to arouse interest, impress the memory and to stimulate thought more than almost anything else. Such use has the sanction of the best educational authorities. Other extension divisions, as for instance those of the Universities of Wisconsin and Kansas, have shown not only the advantage of visual instruction from an educational viewpoint but also the possibility of economizing the means of the State by establishing a Bureau of Visual Instruction to serve as a center for the collection of slides, pictures, maps, etc., and to act as an exchange through which such material may be circulated throughout the State. Obviously the work of such a bureau cannot be fully effective without a considerable fund for the purchase of stereopticon slides, motion picture reels, stereoscopes, motion picture machines, with equipment and material, as well as an adequate clerical force. No fund, however, has been available for this purpose. Still, it was thought that by diverting some of the funds of other bureaus to the support of a Bureau of Visual Instruction and by charging a fee for some of the services it might render, a bureau of this kind could be organized and maintained until a demonstration could be made of its possible value to the State as a means of increasing the efficiency of educational effort. This we have done.

The Bureau of Visual Instruction was formally organized on November 1, 1915. Its purpose is to collect and circulate all visual aids to instruction including slides, maps, charts, moving picture films, industrial exhibits, etc., for the benefit of university extension centers, clubs, schools and other educational agencies of California. All the organizations that have utilized the services of this bureau appreciate its benefits and manifest a disposition to co-operate with it to the fullest possible extent.

The work of the bureau has necessarily been limited and in a way, preliminary. At present it is conducted along the following lines: the listing and circulating of stereopticon slide and motion picture films; the circulation of a monthly illustrated lecture on current events; the provision of illustrated lecture on general topics, and the organization and circulation of traveling industrial exhibits.

Slides and Films.—Many slides and films have been supplied, without cost to us, by the Bureau of Commercial Economics, Washington, D. C., a semi-public organization, which serves as an exchange for material of this kind for industrial and commercial organizations. The Bureau of Commercial Economics distributes this material principally through the extension divisions of the various State universities. It is possible for this bureau to obtain an almost unlimited number of subjects of an industrial character through the Washington Bureau, but additional subjects will be listed only as the number of schools and other educational agencies co-operating with us in this work justify the bureau in requesting additional films.

Monthly Lecture on Current Events.—Through co-operation with the American Institute of Current History, the bureau offers to the schools of the State the use of a monthly lecture on current events, illustrated with stereopticon slides. This lecture, which has increased in interest and popularity from month to month, has cost the bureau \$1.34 plus the time, postage and supervision given to it; and the bureau has received in return for each school using the lecture, \$2. Commencing with the new school year, the lecture will be circulated under slightly different arrangements which will make possible the extension of this work to many more schools than in the past.

Travelling Industrial Exhibits.—This bureau has organized travelling school exhibits, chiefly from displays at the Panama-Pacific International Exposition. The matter was carefully considered with a large number of exhibitors at the Exposition and it was finally decided to organize a number of independent units of a travelling industrial exhibit. Careful inquiry showed that exhibits as proposed were entirely new in principle. Three cities—Philadelphia, St. Louis and Chicago had organized school exhibits or museums, but the methods of organization, circulation and handling were entirely different from that proposed for California. The Philadelphia Commercial Museum had organized some large cabinets similar to filing cabinets, containing a number of drawers. Each drawer in these cabinets contained specimens of raw products, etc., with a description pertaining

to them. The cabinets have been circulated in selected schools in Pennsylvania. The St. Louis School Department, following the Exposition in St. Louis, had collected a great many specimens which had been mounted and boxed in the most convenient forms and circulated through the schools of that city. The Chicago Field Museum, through its N. W. Harris Extension Division, had organized a number of travelling school exhibits dealing principally with natural history subjects mounted in uniform cabinet stands, which it circulated through schools of Chicago.

Guided principally by the experiences of these three cities, it was determined to use uniform methods of exhibit installation, but for the present to specialize on industrial subjects. It was necessary to limit the work at the beginning to industrial subjects, as such exhibits could be made self-supporting whereas natural history exhibits require a large fund for installation and maintenance. Industrial exhibits, carrying the names of their donor in a uniform but strictly unobjectionable way, have been secured at the expense of industrial concerns. They had to be secured in this way as no fund was available for this purpose. The approximate value of the donations thus far received is \$16,800. It was thought at first that the Exposition could furnish much material for such exhibits, but investigation proved that most of the material obtainable was too bulky, and incapable of installation in standardized form.

Cases and stands similar to those used by the Chicago Field Museum, making a unit or exhibit to consist of two cases with a stand to accompany them, were adopted. Competitive bids for the manufacture of cases and stands were secured and industrial concerns invited to exhibit with the understanding that every exhibit prepared must be approved in every particular by this division and delivered for use without expense to it. Exhibitors were informed that not more than twenty-five units would be received under this arrangement, so that necessary improvements in style of exhibits and other alterations might be made before the number of exhibits on hand made changes difficult.

The first fifteen exhibits were placed in service in January of this year and have been in use, with a number of additional

ones furnished later, since that time. Their reception in the schools far exceeded expectations, leading to an embarrassing demand from schools in all parts of the State for additional units.

The first few months of use of the exhibits emphasized the importance of certain changes in cases and in methods of handling. Accordingly all new cases are being made of metal instead of wood, with heavier trunks and better protection against breakage of glass and material installed; with provision for future maintenance and assistance with layouts and description by the company furnishing cases, thus making it possible for the secretary of the bureau to secure a far larger number of exhibits and at the same time to devote his attention, so far as this part of the work is concerned, principally to making each exhibit strictly educational in character and of greater benefit to schools and organizations using them.

The following subjects are covered in the exhibits now in circulation or in various stages of preparation:

Hides into finished shoes.	The manufacture of beet sugar.
Lead and oil into paint.	The manufacture and uses of explosives.
Varnish gums.	Bread-making.
Color harmony.	By steamship to Honolulu.
Graphite into pencils.	School room and home ventilation.
Cotton into finished fabric.	Sales systems.
Lithography.	Raw wheat and oats made into cereals and flour.
The use of projection machines.	Color strength.
The use of the microscope.	Hemp and flax into rope.
Evaporated milk.	Floor wax.
The manufacture of salt.	Crude oil into fuel and lubricants.
The manufacture of stoves.	Rubber into automobile tires.
The manufacture and use of carbondum.	First aid practices.
The evolution of the flashlight.	Methods of safeguarding the milk supply.
The manufacture of candy.	Mechanical bookkeeping.
Printing and bookbinding.	Submarine cables.
Evolution of the typewriter and its appliances.	The development of the telegraph.
The manufacture of yeast.	The evolution of the storage battery.
The knitting industry.	
The manufacture of structural steel for reinforcements.	

The manufacture and uses of socket electrical appliances.	Butter and cheese industry.
The production of tea and coffee.	The porcelain industry.
The manufacture of fountain pens.	The evolution of the Mazda lamp.
The manufacture of optical lenses.	The electric range.
Fruit and vegetable canning.	A tour of Yosemite National Park.
The express industry.	The manufacture and uses of gas tractors.

RESUMÉ

Total number of exhibit units completed and in circulation or in preparation	56
Approximate value of exhibits	\$16,800
Number of uses in school (each exhibit remains two weeks as the single exhibit in a school)	153
Pupils seeking and studying exhibits (records of last school year showing an average enrollment of 700 pupils to a school).....	107,100
Total number of free slides available for distribution	850
Total number of uses of slides	200
Total number of films available for distribution	55
Total number of uses of films	545
Approximate attendance at such uses	163,500
Total number of current events slides distributed	1,250
Number of uses of current events lectures	186
Total attendance on such lectures (estimated)	14,000

DENTAL INSTITUTE

For the past three years there has been given annually under the joint auspices of this division and the College of Dentistry, a series of lectures and clinics. In each instance a subject was selected which was thought to be of such interest to the practicing dentists of the State that they would leave their practice for a week to attend the Institute with the object of improving their professional skill and increasing their knowledge.

The first course was given in San Francisco in January, 1914, by Dr. Chas. K. Teter of Cleveland, Ohio, on "Nitrous Oxide and Oxygen Anesthesia and Analgesia." It was an unqualified success, being attended by two hundred and seventeen dentists from the northern and central portion of California and from Nevada.

The second course of lectures and clinics was given by Dr. Immanuel Otteson, Professor of Operative Dentistry, Tandlaege Institute of Kristiania, Norway. The subject was "Local Anesthesia in Minor Surgery and Operative Dentistry." It was given in Los Angeles and San Francisco, beginning in Los Angeles December 27, 1914, and in San Francisco on January 8, 1915. Through the kindness of Dean Lewis E. Ford and the faculty of the College of Dentistry, University of Southern California, the course in the southern city was conducted in that school with excellent results, though managed by the University of California, very generously and conscientiously assisted by Dr. Jas. S. Montague of Los Angeles.

In San Francisco the courses have been given in the College of Dentistry, First and Parnassus avenues, San Francisco.

The course offered December 28 to January 7, 1916, included lectures and demonstrations by Dr. Arthur D. Black, Professor of Operative Dentistry and Dental Pathology, Northwestern University Dental School, Chicago, Illinois, on "Diseases of the Peridental Membrane." It was given in both Los Angeles and San Francisco. This course was supplemented in San Francisco by lectures and clinics on "Dental Radiography," College of Dentistry, University of Southern California, and lectures and clinics on "Hand Carved Porcelain," College of Dentistry, University of California. These lectures were well attended and well received in both cities.

The dental profession of Oregon and Washington, catching the spirit of extension lectures, welcomed the opportunity of participating in this plan of extending useful knowledge, and, at the suggestion of the University of California, arranged to have Dr. Black give his lectures in those states. In Portland, Oregon, the lectures were conducted under the auspices of the Oregon State Dental Association at the North Pacific Dental College. This activity may in part be responsible for the plan now being proposed to consolidate this school with the Oregon State University. In Washington the work was undertaken by the Extension Division of the University of Washington.

This type of instruction conforms in policy to the Hitchcock

lectures in the University, the Lane lectures in Stanford University Medical School, the Page lectures at Yale, differing only in that under present conditions it is necessary to charge for instruction.

The good derived from attendance upon these lectures and clinics is obviously transmitted to the people of the state, for those in attendance come with the hope of improving their professional skill and their knowledge of the subject. It is earnestly hoped that by endowment or appropriation funds may be provided to carry on this work permanently at no expense for tuition on the part of those receiving instruction.

PRISON WORK

In the State Prisons.—Early in 1914 this division began to give courses free to the inmates of the California State penitentiaries at San Quentin and Folsom. This service has proven acceptable to the prisoners, and useful both as a means of relieving the unprofitable tedium which they endure and of enabling many who lack education to use their idle time to good purpose, and it has been continued. The results during the past twelve months have been fully as satisfactory as during any previous period.

The following table shows the number of enrollments for correspondence instruction received from the State penitentiaries year by year since this service was begun:

Year	Men	Women	Total
1913-14	446	....	446
1914-15	354	5	359
1915-16	350	11	361
	<hr/>	<hr/>	<hr/>
	1,150	16	1,166

No special effort has been put forth to induce prisoners to enroll in correspondence courses, particularly for the reason that each additional prisoner enrollment adds to the financial burden of the division, which is already greater than can be borne. It would be easy with the co-operation of the authorities to enroll

perhaps the majority of the thirty-five hundred prisoners more or less in the two State penitentiaries but, much as we sympathize with the prisoners and much as we desire to assist them, we cannot afford to neglect the demands of men and women outside of prisons. There is another reason, and that is that since this work was undertaken schools have developed within the prisons. In both San Quentin and Folsom these schools are now well organized and under the immediate direction of the prison authorities. It remains for us to do all we can to stimulate the growth of these prison schools.

Inasmuch as the work in Folsom was not taken over by the prison until in December it will be appropriate to reproduce here, at least in part, the report of Mr. M. J. Jacobs, who under our direction initiated the work there.

“Since the opening of the school two and a half years ago, instruction has been given in all the branches of the elementary and grammar grades and in advanced algebra, shop mathematics, mechanical drawing, freehand drawing, bookkeeping, English, stenography, typewriting, telegraphy, penmanship, Spanish, navigation, gas engineering, American history, civics, and commercial law.

“Of the 1164 new men that were received in prison since the school started, 813 men or nearly 70 per cent have enrolled in the school. The total number of men who availed themselves of the privilege of going to school is 1195. Thus 813 newcomers, and 382 men who were there before the school started have taken advantage of the school privileges.

“The offenses of the men attending school include almost every crime and their sentences vary greatly in length, including sixty-one life terms. The education of the great majority of the men is very limited; ninety-two were totally illiterate, and the average schooling stopped at about the fifth grade. A total of eighty-four occupations are represented by those who attend the school, but more than half have no occupation but that of common labor.

“School attendance is not compulsory at Folsom Prison, yet we see that many men take advantage of the opportunity to improve themselves.

“The teaching is done by inmates of the institution, who deserve a great deal of credit for their efforts to help their fellowmen and for their sincerity and earnestness in trying to improve the morals and behavior of the men attending school, thereby improving the general discipline of the prison.

“The school was started in the shape of an experiment, with only twenty-five men in four different classes taught by myself; but in the

short space of two and one-half years it has grown to such proportions that there are now an average of fifty-eight classes a week being taught, an average attendance of five hundred men, and an average of ten teachers. At this point it may be well to mention that out of the 1195 men that have enrolled in the school, only fourteen have committed infractions of the rules of the institution; this shows the moral influence of the school on the men."

In the United States Disciplinary Barracks on Alcatraz Island.—On the initiative and with the co-operation of Captain Howland, U. S. A., Commandant of the Army Disciplinary Barracks on Alcatraz Island, instruction has been provided for the army and navy offenders incarcerated there. The Chaplain at the barracks and competent soldiers on duty as guards give instruction in the common branches to all prisoners who desire it. A system of examinations in the common branches has been established. Whenever a man demonstrates his ability to pass these examinations, he is permitted by the authorities to take up correspondence instruction under this division. In this way the members of the force at the barracks do all they can for the prisoners first of all, and men who express the desire to take courses demonstrate the strength of their purpose in pursuing education. They are not allowed to enroll for correspondence courses as the mere result of a whim. From the barracks population of about three hundred prisoners we have in six or seven months obtained eighty-five enrollments, on the majority of which satisfactory work has been done. The United States Government pays this division ten cents for the reading of each lesson report written by prisoners. This arrangement is mutually satisfactory. It would be well if the correspondence instruction in the State penitentiaries could be remodelled and reorganized on this basis.

NEEDS OF THE DIVISION

The needs of this division are many and they must be met, otherwise it will be necessary to relinquish some of the work we have already successfully begun. We need, for instance, secretaries for the following bureaus: lectures, municipal reference,

and information. We need also not fewer than three organizers to travel over the State, organize university extension centers and look after the interests of this division; competent persons to prepare correspondence courses and conduct classes in engineering, business administration and management, art, music, and history. We have insufficient office assistance. Neither the director nor any of the secretaries has a private office. Thus unnecessary interruptions of the work of secretaries and loss of time are frequent and their efficiency is diminished. The salaries of the administrative officers and the wages of stenographers in the office are not as much as is paid for the same work in other institutions. The Bureau of Visual Instruction must be provided with a considerable sum in order to push the work that has been so well begun. We should have more class rooms for the extension classes in San Francisco which cannot be well held in the school buildings. A branch office should be established in Los Angeles. This we have had in mind from the beginning, but if the work there to be initiated is to be creditable to the University, and adequate to meet the educational demands upon the University made by the southern part of the State, a sum of not less than \$15,000 for that purpose will be required for the next biennium. All the various items of expenditure will, of course, rapidly increase with the expansion of the work during the next two years. The least amount that will enable us to continue the work of this division unhampered is \$100,000, exclusive of fees. This may seem a large sum to those who are unacquainted with the scope of university extension, with its present proportions in the State, and with the demand for it, and its possibilities. But if the State is to be in reality the "Campus of the University," if this is the desire of the State, it should be recognized that a larger amount than this will soon be necessary. We may safely say that no other form of expense by the State will bring to the people, and to the University, a larger return. The University of Wisconsin spent on university extension in the year 1914-15, \$239,110, only \$30,000 of which was derived from fees. Columbia University expended \$100,000 for university extension the same year, although the work there is chiefly

concerned with providing class instruction for the people in and about the city of New York. Minnesota University, which only recently began the work of university extension, expended upon it in 1914-15, \$89,350. California, with the full realization of the value of university extension, which value has been fully demonstrated by other educational institutions and we hope also by this University, should willingly expend \$100,000 during the next biennium for the education of the people through university extension.

FINANCIAL REPORT

STATEMENT FROM ACCOUNTANT'S OFFICE

Receipts from fees during 1915-16 (net)	\$29,400.64	
State appropriation	20,000.00	
		\$49,400.64
Expenditures 1915-16 (applied against fee receipts) ..	\$33,273.17	
State appropriation	20,000.00	
		53,273.17
Deficit for year 1915-16		\$3,872.53
Deficit for year 1914-15		2,717.04
Total deficit July 1, 1916		\$6,589.57

From data in the office of the Extension Division we are able to distribute the statistics of income so as to show the amount received by the different bureaus, and the various items of expenditure. Thus distributed the report stands as follows:

RECEIPTS

Appropriation	\$20,000.00
Bureau of Class Instruction	13,143.33
Bureau of Correspondence Instruction	8,382.25
Bureau of Lectures	6,862.06
Bureau of Public Discussion	168.75
Bureau of Visual Instruction	757.25
Miscellaneous receipts	87.00
	\$49,400.64

EXPENDITURES

Salaries	\$8,787.04
Instruction	10,495.71
Readers	3,644.61
Lecturers—Salaries and honorariums	5,534.00
Organizers—Salaries	1,173.00
Office assistance	9,946.27
Traveling expenses	2,844.99
Laboratory equipment	163.07
Rentals	817.50
Machine rent	217.50
Printing	3,346.77
Postage	2,248.75
Office supplies	823.59
Office equipment	1,617.71
Freight and cartage	184.80
Telephone service	125.69
Telegrams	38.73
Department of Grounds and Buildings	240.95
Bureau of Public Discussion—Championship Debate....	167.50
Miscellaneous	854.99
	————— \$53,273.17

Conclusion.—In concluding this report we wish to express the thanks of the division for the sympathy manifested by the President of the University and the Dean of the Faculties in the general purposes of the division, and for the generous permission to carry out plans of extension which were necessarily more or less experimental. We wish to thank also all who have in any manner contributed to the success of the division, particularly those members of the faculty who, without compensation, have prepared correspondence courses for the use of the Bureau of Correspondence Instruction. We have about one hundred and fifty such courses. If we had been obliged to pay for them at their commercial value, we should have had no funds remaining with which to carry on the work. Some private correspondence schools, we are informed, pay more in some cases for the preparation of a single correspondence course than the entire cost of university extension in this University during the past year.

With many evidences of appreciation on the part of those we serve, with a firm belief that in promoting the interest of the division through successful efforts to serve the people we are at the same time promoting the interests of the University, we enter upon the work of another year with courage and with confidence.

Respectfully submitted,

I. W. HOWERTH,

Director.

GRADUATE DIVISION

BERKELEY, July 1, 1916.

To the President of the University,

SIR: I have the honor of presenting my report on the Graduate Division for the academic year 1915-16.

Attendance.—The total registration of graduate students for the year was 1014 (832) (figures in parentheses represent the corresponding figures for the preceding academic year), including 23 (21) students admitted to study in absence, an increase of 22 (17) per cent over the preceding year. In five years the registration has more than doubled. Of the 991 (811) resident students 52 (59) either failed to file study-cards or withdrew. The remaining 939 (752) were distributed as follows:

PROFESSIONAL SCHOOLS AND COLLEGES—	1914-15	1915-16
Agriculture (all sub-divisions)	43	75
Architecture	19	19
Chemistry (including students in other colleges with major subject chemistry)	39	44
Commerce (including students in other colleges with major subject economics)	46	54
Education (not including students in the School of Education with a first major in other subjects)	48	53
Engineering	17	15
Jurisprudence	65	95
Medicine (students who take the first or second year at Berkeley in graduate standing)	27	28
Total	304	383
Percentage	40.4	40.8

MODERN AND ANCIENT LANGUAGES AND LITERATURES—

	1914-15	1915-16
English	55	100
German	41	39
Greek	4	4
Latin	29	29
Oriental Languages	2	2
Romanic Languages	50	46
Semitic Languages	4	5
Slavic Languages	1	3
Total	186	228
Percentage	24.7	24.3

NATURAL AND ALLIED SCIENCES—

Anatomy	4	2
Anthropology	1	6
Astronomy	8	8
Botany	16	12
Geography	3	4
Geology	2	8
Hygiene	6	7
Mathematics	30	23
Mineralogy	2	1
Palaeontology	7	3
Pathology	2	8
Physics	16	25
Physiological Chemistry }	7	5
Physiology }		11
Public Health		3
Zoology	23	29
Total	127	155
Percentage	16.9	16.5

OTHER SUBJECTS—

Domestic Art and Science	12	33
Drawing and Art	11	10
History	58	69
Music	1	5
Philosophy }		27
Psychology }	24	7
Physical Education	6	9
Political Science	23	13
Total	135	173
Percentage	18.0	18.4

The percentage of graduate students in each of the foregoing groups has changed but little, yet considerable changes have occurred in some departments within a group. Conspicuous in the group of professional schools and colleges is the growth of the number of graduate students from 43 to 75 in agriculture, and from 65 to 95 in jurisprudence. This growth in agriculture and jurisprudence amounts to increases of 74 and 46 per cent respectively, and stands in sharp contrast to the general increase of 22 per cent in the graduate division. Healthy growth, but below the general growth of 22 per cent, took place in chemistry, commerce (economics), and education, the increase averaging 13 per cent, while architecture, engineering, and medicine had no part in the general growth.

In the group of modern and ancient languages, English stands out with the largest increase in absolute numbers, from 55 to 100, being an increase of 82 per cent, while practically none of the other departments in this group show any material gain.

In the group of natural and allied sciences, the most notable feature is the change in relative positions of mathematics and physics. While in 1914-15 mathematics with 30 graduate students outnumbered physics with 16, nearly in the ratio of two to one, in 1915-16 physics with 25 graduate students outnumbered mathematics with 23. A decrease in the actual number of students has also occurred in palaeontology. In addition to physics—anthropology, geology, pathology, and physiology (including physiological chemistry) show remarkable increases, while in zoology the gain of 26 per cent is slightly larger than the 22 per cent general gain in the graduate division. The remaining departments show no change in the actual number of students and therefore have not participated in the general growth of the graduate division.

In the last, or unclassified, group the most striking feature is the sudden rise of domestic art and science (home economics) from 12 to 33 graduate students. Practically all of these are students who take a graduate year for the purpose of qualifying for the recommendation for the high school teacher's certificate. Philosophy (including psychology), with a gain of 42 per cent.

far exceeds the general growth in the graduate division, while history, with a gain of 19 per cent, practically remains in line with the general growth. The number of graduate students in political science has dropped from 23 to 13. Music is now well represented.

The percentage of women among the graduate students has been as follows:

	1912-13	1913-14	1914-15	1915-16
Percentage	46.9	42.9	44.8	47.1

In addition to the 1014 registered students, 146 accepted candidates for higher degrees continued their studies under the direction of the university during temporary absence. The enormous growth in the number of graduate students in the summer session is shown by the number of applications for admission received from students holding bachelors' or higher degrees. For the three successive years, 1913, 1914, 1915, the numbers were 443, 825, and 1552. For 1915 the growth was due in part to the Panama-Pacific International Exposition. Deducting duplicates, approximately 2400 (1650) students came under the supervision of the graduate division in 1915-16 (1914-15).

Institutions Represented.—The classification of graduate students according to the institutions from which they had received degrees was as follows:

	1914-15			1915-16		
	No. of institutions	No. of students	Percent- age of students	No. of institutions	No. of students	Percent- age of students
University of California	1	431	53.7	1	563	55.5
Other California institutions....	9	88	11.0	12	94	9.3
Other institutions west of the Rocky Mountains	16	49	6.1	24	56	5.5
Middle Western institutions..	65	139	17.3	74	190	18.7
Eastern and Southeastern institutions	44	68	8.5	58	128	12.6
Foreign institutions	24	27	3.4	38	47	4.6

The total number of institutions represented for 1914-15, including nine unclassified institutions not listed above, was 168.

The total for 1915-16 was 207. The increase in the number of institutions represented was, therefore, 39.

Since, for 1915-16, students holding degrees from more than one institution are counted in the total for each institution, the total of the percentages exceeds 100.

One hundred and forty-nine (100) or 14.7 (12.0) per cent of all graduate students coming from other institutions came from institutions belonging to the Association of American Universities.

Of other California institutions, Leland Stanford Junior University and Pomona College continue to send the largest number of graduate students, the numbers being 34 (28) and 30 (27), respectively. The number of students coming from various sections of the United States remains practically in the same proportion with the exception that in 1915-16 nearly twice as many graduate students were drawn from eastern and southeastern institutions. These students alone now form nearly 13 per cent of the whole graduate student body, having increased from 8.5 per cent for the preceding year. At the same time, the number of foreign students has risen from 27 to 47, an increase of 74 per cent. A most gratifying phenomenon is the increase from 100 to 149 in the number of students coming from institutions in the Association of American Universities. During 1914-15, seventeen of the twenty-two institutions belonging to the Association of American Universities were represented in the graduate division. For 1915-16, all institutions in the Association were represented for the first time.

Candidates for Higher Degrees and Degrees Conferred.—The number of accepted candidates for higher degrees, the number of degrees conferred, and the number of recommendations for the high school teacher's certificate approved by the Committee on Higher Degrees has been as follows:

Degree	1913-14		1914-15		1915-16	
	Candidates	Degrees conferred	Candidates	Degrees conferred	Candidates	Degrees conferred
M.S. and M.A.	220	119	233	119	295	149
Gr.P.H.	0	0	5	5	0	0
Gr.Arch.	2	2	5	3	3	1

Degree	1913-14		1914-15		1915-16	
	Candi- dates	Degrees conferred	Candi- dates	Degrees conferred	Candi- dates	Degrees conferred
J.D.	17	16	25	20	32	22
C.E.	0	0	0	0	1	0
Ph.D.	71	14	81	22	95	22
	—	—	—	—	—	—
Total	310	151	349	169	426	194
High School Teachers'						
Recommendations .....	.....	194	225	225	243	218
	—	—	—	—	—	—
Grand Total .....	.....	345	574	394	669	412

The number of candidates who either withdrew or were disqualified has been as follows:

	1913-14	1914-15	1915-16
M.S. and M.A.	19	15	22
J.D.	0	0	1
Ph.D.	13	2	3
H. T. R.	0	0	17

Candidates for high school teacher's recommendations were disqualified for the first time in 1915-16 through the operation of a new rule of the Committee on Higher Degrees, according to which candidacies lapse if the proposed programme of studies is not completed within one year after the date originally proposed by the candidate. Lapsed candidacies may be revived on the basis of the regulations and requirements prevailing at the time of renewal.

The percentage of candidates for the masters' degrees completing their work during the year has remained practically the same for 1915-16 and 1914-15, after a drop in 1914-15 to 51 per cent from 54 per cent in 1913-14. The number of recommendations for the high school teacher's certificate, on the other hand, has decreased from 225 in 1914-15 to 218 in 1915-16, after a previous increase from 194 in 1913-14. The difficulty of simultaneously completing the requirements for both the master's degree and for the recommendation for the high school teacher's certificate, therefore, has caused a decrease in the number of

teachers' recommendations during the past year, while for the year preceding, when the new rules of the School of Education regarding major and minor subjects went into effect, it had caused a decrease in the number of masters' degrees. The percentage of candidates for the degree of Doctor of Philosophy completing their work during the year was 19.7 in 1913-14, 27.2 in 1914-15, and 23.2 in 1915-16, indicating considerable variation. Omitting the Schools of Jurisprudence, Architecture, and Medicine, and the Engineering Colleges, about 10 per cent of the graduate students are accepted candidates for the degree of Doctor of Philosophy and appear to be preparing for a university career in academic departments. But since many graduate students defer applying for candidacy until their last year of residence, the graduate division includes even a greater percentage of prospective university teachers.

Up to the present time the University has conferred a total of 148 degrees of Doctor of Philosophy. Of these twenty-two were conferred during each of the academic years 1914-15 and 1915-16. The table which follows gives a comprehensive view of the past and present activities of departments in regard to graduate and research work leading to this degree.

	Total No. Ph.D.'s conferred	Candidates Ph.D. 1914-15	Ph.D.'s conferred 1914-15	Candidates Ph.D. 1915-16	Ph.D.'s conferred 1915-16
Agriculture	5	3	0	6	3
Anthropology	2	0	0	0	0
Astronomy	18	6	1	8	1
Biochemistry	3	0	0	2	1
Botany	11	5	3	3	2
Chemistry	16	7	5	6	5
Economics	3	2	0	5	1
Education	2	9	0	9	0
English	4	1	0	0	0
Geology	8	1	0	2	0
German	3	3	0	4	0
Hebrew	1	1	0	1	0
History	12	13	5	9	2
Hygiene	0	0	0	1	0
Jurisprudence	0	1	0	1	0
Latin	4	2	0	3	0

	Total No. Ph.D.'s conferred	Candidates Ph.D. 1914-15	Ph.D.'s conferred 1914-15	Candidates Ph.D. 1915-16	Ph.D.'s conferred 1915-16
Linguistics	1	0	0	0	0
Mathematics	10	2	0	4	2
Oriental Languages	0	1	0	2	0
Palaeontology	6	4	2	3	1
Pathology	0	0	0	1	0
Philosophy	3	2	1	2	0
Physics	7	3	2	5	1
Physiology	9	1	0	0	0
Political Science	3	4	0	6	0
Psychology.....	0	0	0	1	0
Romanic Languages	2	5	0	5	2
Zoology	15	5	3	6	1
Total	148	81	22	95	22

The distribution of graduate students by major subjects for candidacy for the masters' and doctors' degrees and for the recommendation for the high school teacher's certificate for the year 1915-16 was as follows:

Major subject	No. of students	T.R.	M.S. M.A.	Ph.D.
Agriculture	82	8	31	6
Anatomy	2	3	1	0
Anthropology	6	1	1	0
Architecture	22	4	8	0
Astronomy	10	1	1	8
Botany	14	12	2	3
Chemistry	50	6	12	6
Drawing and Art	10	5	2	0
Economics, Commerce	59	6	15	5
Education	74	28	22	9
Engineering	17	3	6	0
English	118	37	36	0
Geography	5	3	1	0
Geology and Mineralogy	11	1	2	2
German	51	15	19	4
Greek	4	3	2	0
History	78	25	23	9
Home Economics	34	23	6	0
Hygiene, Public Health	13	4	4	1
Jurisprudence	98	4	0	1

Major subject	No. of students	T.R.	M.S. M.A.	Ph.D.
Latin	34	17	15	3
Mathematics	32	14	14	4
Medicine, Research Medicine	28	0	1	0
Music	5	0	0	0
Oriental Languages	3	0	1	2
Palaeontology	3	0	0	3
Pathology and Bacteriology	8	0	2	1
Philosophy, Psychology	38	9	8	3
Physical Education	9	2	0	0
Physies	30	6	11	5
Physiology, Physiological Chemistry	17	8	10	2
Political Science	20	3	10	6
Romanic Languages	54	20	14	5
Semitic Languages	6	1	0	1
Slavic Languages	4	0	1	0
Zoology	36	12	14	6

In addition to the candidates tabulated in the foregoing table, there were three candidates for the degree of Graduate in Architecture, one for the degree of Civil Engineer, and thirty-two for the degree of Juris doctor. Ultimately all students in jurisprudence and medicine become candidates for either the J.D. or M.D. degrees. The sudden demand for the higher degree of Graduate in Public Health does not seem as insistent as in previous years. There were no candidates for 1915-16, as compared with five such degrees actually conferred during the previous year.

It should be observed that the foregoing table includes both resident students and accepted candidates who are temporarily absent from the university. The table is intended to bring out merely the main object which the graduate students are pursuing in the different departments. The figures in the last three columns do not include all the candidates who may come from the number listed in the first column, since many of these students will apply for candidacy during the following academic year or later. On the other hand, the number of candidates in a department may exceed the number of students in the same department, partly because many students are at the same time candidates for the recommendation for the high school teacher's

certificate and the master's degree, and partly because the numbers in the first column are based on the principal study declared by the student, while he may offer also a second major for the teacher's recommendation, which is included in the second column.

With these explanations some facts seem to stand out more or less clearly. The professional student in medicine and law as a rule has neither the time nor the interest in academic higher degrees in addition to his candidacy for the M.D. or the J.D. Students in architecture and engineering seem to be content as a rule with the master's degree as a professional degree, in preference to the higher degrees, Graduate in Architecture, and Engineer. Candidates for the master's degree are numerous in agriculture and economics (commerce), the degree evidently being sought after for professional purposes. Comparatively few students in these two colleges are preparing to teach in the high school and almost an equal number, as judged by the number of candidates for the Ph.D. degree, are preparing for a university career. In addition to the department of education, the following are particularly strong in training high school teachers: botany, English, German, history, home economics, Latin, mathematics, physiology, Romanic languages, zoology, and possibly philosophy. Except for botany and home economics, the number of candidates in these departments for the master's degree is comparable with the number of candidates for the teacher's recommendation, since practically all teachers now aspire to the master's degree. Other departments with fewer students in which candidates for the teacher's recommendation are prominent are anatomy, drawing and art, geography, and Greek. Agriculture, commerce, chemistry, physics, and physical education, representing high school subjects of importance, have few candidates for the teacher's recommendation in comparison with the number of students majoring in these departments.

The part played by individual departments in the more advanced field of training investigators and college or university teachers has already been set forth above in absolute numbers in the table giving the number of candidates for the Ph.D. degree

and the number of Ph.D. degrees conferred for each department. The last table also indicates the relative number of prospective high school teachers and of prospective investigators or university teachers (Ph.D. candidates) for each department. Thus it is seen that in astronomy and palaeontology, with rarely a candidate for either the teacher's recommendation or the master's degree, the graduate students are practically all prospective investigators or university teachers, while English, with the maximum number of graduate students has no candidate for the Ph.D. degree.

Graduate Work in the Summer Session.—The relation of the summer session to the graduate division is exhibited by the following tables:

Summer Session	1913	1914	1915
Number of graduate students	433	825	1,552
Number enrolled in graduate courses	212	334	440
Percentage	49	40	28

Year	Masters' degrees conferred	Enrolled in Summer Session	Percentage
1912-13	89	15	17
1913-14	119	19	16
1914-15	119	18	15
1915-16	149	27	17

The foregoing figures indicate that graduate courses are much in demand during the summer session. The percentage of students holding the bachelor's degree enrolled in graduate courses appears to have steadily declined from 1913 to 1915. This decline, however, should not be interpreted as a lessening of the demand for graduate courses in the summer session, since according to the second table, the percentage of students applying summer session work in partial fulfilment of the requirements for the master's degree has remained practically constant for four years. The actual number of these candidates for the master's degree has nearly doubled in three years. The demand for graduate courses in the summer session is even greater on the part of applicants for the high school teacher's recommendation.

The provisions for graduate work in the summer session are constantly increasing and the inauguration of the policy of counting systematic research work done under the immediate direction of a member of the faculty in our laboratories during the interval from Commencement in May to the beginning of the summer session, as intersession residence with credit towards a higher degree, has been productive of very satisfactory results. The intersession and summer session work combined afford an opportunity for intensive and consecutive work, in no way inferior to the opportunities existing during the regular sessions.

Admission to the Graduate Division.—The policy in force with respect to admitting students to the graduate division, as outlined in my report for the previous academic year, has continued to give unqualified satisfaction, by lessening the administrative work both in the Recorder's and in the Dean's offices. The fact, however, that admission to the graduate division does not constitute admission to candidacy for a higher degree does not as yet seem fully understood by all members of the faculty.

The Announcement of the Graduate Division.—The Announcement of the Graduate Division continues to serve a useful purpose in providing the necessary information in answer to the numerous requests for information regarding our organization, the opportunities for graduate work, and the conditions under which higher degrees are conferred.

Organization of the Graduate Division.—Serious attention has been given by the Committee on Higher Degrees to the problem of proper administration of the graduate activities of the University since the Committee has become a committee of the Academic Senate. No universally satisfactory plan has as yet been determined. During the past year the committee has administered the graduate division under the chairmanship of the Dean of the Graduate School in accordance with the existing regulations.

Legislation.—On the recommendation of the proper academic bodies the Regents have established the degree of Graduate in Education and the Senate has adopted a curriculum leading to that degree.

Three standing committees have been discontinued by the Academic Senate and their functions have been delegated to the Committee on Higher Degrees. These committees were the Committee on the Association of American Universities, the Committee on the Faculty Research Lectureship, and the Committee on the Hitchcock Lectures.

The Hitchcock and the Faculty Research Lectures.—The Hitchcock Lectures for the year were delivered by Thomas Hunt Morgan, Professor of Experimental Zoology, Columbia University, on April 12, 14, 17, 19, and 21, 1916, the subject of the lectures being, "The Bearing of Modern Work in Genetics on the Theory of Evolution." Frederick Parker Gay, Professor of Pathology, was chosen by the Academic Senate to deliver the annual Faculty Research Lecture. The subject of his lecture, which was given on March 23, 1916, was "The Contribution of Medical Science to Medical Art as shown in the Study of Typhoid Fever."

Respectfully submitted,

A. O. LEUSCHNER,

Dean of the Graduate School.

HASTINGS COLLEGE OF THE LAW

SAN FRANCISCO, July 1, 1916.*To the President of the University,*

SIR: The College still pursues its way in full strength and vigor, it having entered upon a new era in being given quarters in the new City Hall which were specially designed for it and which are perfectly adapted to its purpose. The courts are all situated on the same floor with it, as is the San Francisco Law Library with nearly 40,000 volumes on its shelves. As the students have the unrestricted use of this as well as the use also of the Bar Association Library, it is as well provided for in this respect as is needed.

The faculty during the year lost by resignation Dr. Louis T. Hengstler, who had most worthily filled for twenty years the two chairs of Constitutional Law and Evidence. The vacancy in Evidence has been filled by the appointment of Mr. Alan C. Van Fleet. The other vacancy will be soon filled.

There were eleven men in the 1915-16 Senior Class, of whom eight were graduated and three rejected.

Respectfully submitted,

EDWARD R. TAYLOR,

Dean.

HOOPER FOUNDATION

SAN FRANCISCO, July 1, 1916.

To the President of the University,

SIR: I have the honor to present the following report of the George Williams Hooper Foundation for Medical Research.

This report deals chiefly with the work of the laboratory staff, and outlines some of the larger problems upon which work is in part completed or in progress. No building changes but many additions to the general laboratory equipment have been made. Three assistants have been added to the technical staff, making a total number of eight laboratory assistants, and this number will be increased in the near future.

The following problems are indicated for consideration, as this presentation is more interesting than any attempt to review the problems under investigation by each research worker of the staff. It is obvious that many of these problems are closely related to each other, and engage the interest of several members of the staff. Co-operation in this manner is invaluable in the pursuit of research work, and leads to many joint problems, some of which gain the interest of the Hospital and Medical School staff, and profit by their collaboration.

Typhoid group of Bacteria (Meyer, Christiansen, Kilgore).—Experiments on rabbits show that these animals when highly immunized against *B. typhosus* may frequently become “carriers” when injected with live bacteria. Such animals excrete living typhoid bacteria in stools or urine for a considerable space of time, and in some respects resemble human “carriers.” Work is in progress which may explain this mechanism of carrier for-

mation, and it is to be hoped may point the way toward a successful therapy. It is well known that human "carriers" are often extremely difficult to cure, and yet such cures are of the greatest importance to the community, as it is obvious that a human "carrier" who excretes living virulent typhoid bacteria may be a constant focus of infection.

Various diagnostic tests have been tried out on rabbits and human beings who have been infected by or vaccinated against typhoid bacteria. It is quite difficult to determine which of the various blood or skin tests may give information of the greatest value in diagnosis or prognosis. Much careful work with these tests has been done.

Infantile Dysentery (Meyer, Stickel) and various intestinal disorders of infants and children are being studied with particular reference to the predominant organisms in the varied intestinal flora. This work has been reviewed in Miss Stickel's thesis for a master's degree.

Improvements in technique are always welcome, and often lead to important work in new fields. A simple and accurate method (Hurwitz, Meyer, Ostenberg) for determining the hydrogen-ion concentration in bacteriological culture media will be of great value in future work. It is often necessary to determine with accuracy the hydrogen- or hydroxyl-ion concentration of any given media which may be best suited for growth of any given organism. The effect upon bacterial growth of slight changes in media reaction has not been sufficiently worked out.

Pigment Metabolism (Hooper, Whipple).—This study embraces all the body pigments, but especially those of the bile and blood. Dogs with bile fistulas make possible a study of the elimination of bile pigments by the body. This is in part a story of the *destruction* of body and blood pigment, but may be a chapter in the *construction* of these same pigments. It is important to know how the body may modify this bile pigment output, for this information may be of great value when we study the *pigment construction* in the body,—for example, the construction of hemoglobin, the pigment of the red blood corpuscles.

It has been found that various organ extracts can influence profoundly the animals with bile fistulas. In the same way can the pigment and general body metabolism be modified in animals and human beings. This fact is important in the study and possible treatment of various anemias, that is to say, conditions in which the red blood pigment is below normal. The study and treatment of these various anemias (Hooper, Whitney, Alvarez) must continue over a long period of time before any definite announcements can be made, but the results so far are promising.

Cancer Growth (Kocher).—It has been shown that certain basic elements (hexone bases) make up a considerable and perhaps essential part of cancer tissue. It is known that the same substances are essential to normal animal growth, and a diet free from such substances will not permit of growth. An effort has been made to feed certain human cancer cases on a diet free from these substances (hexone bases) with the hope that the cancer tissue might be starved out. Its needs for growth are probably proportionate to the rapidity of its extension through the body, and it is possible that the cancer cell may be able to rob the body cells instead of taking these bases from the food intake. There are many difficulties in such work, but the information obtained is of great value. Other problems in metabolism (Kocher) have been investigated,—for example, the relation of various sugars to the use and destruction of protein in the body.

Acute Intoxication (Cooke, Stearns, Rodenbaugh, Whipple).—Acute intestinal obstruction and general peritonitis are good examples and of common occurrence in human cases. The poison concerned can be isolated by means of animal experiments, and studied in various ways. Its action on normal animals has been exhaustively studied as well as the natural means of defense which the body possesses. Improved methods of treatment have been devised and the work aims toward possible methods of cure in such conditions. The immunity which develops after repeated small doses of this poison is of considerable interest, and will repay further study.

Blood (Hurwitz).—There are certain important diseases characterized by prolonged and sometimes fatal bleeding from

cuts or wounds. A careful study of the elements of blood clotting has been made, and the human cases have been treated accordingly. If some element of the clot is found abnormal, this defect is remedied by proper treatment. Such cases usually react well to treatment.

Blood Proteins (Hurwitz, Whipple) are present in the blood serum in considerable amounts. These proteins vary in disease, and the reason for this is not known. Nothing is known about the source or fate of these proteins, which may play a very important rôle in the body economy. Work in this field promises information of value.

The variation of these blood proteins (Hurwitz, Meyer) in bacterial infection and immunity has been carefully studied. It is found that there is no relation between the globulins and the immune bodies, as has long been assumed.

The *gastro-intestinal tract* (Alvarez) has been studied in great detail as regards its rhythmic activity and general muscular tone. This work makes possible a clearer understanding of the physiology of the digestive tract as well as its reaction under diseased conditions. The work is of fundamental importance.

There are many other problems which need not be reviewed at this time but may be mentioned. Liver function (Falconer, Rodenbaugh) has been studied in various hospital cases. Acidosis (Whitney, Emge) has been studied in hospital cases and animal experiments. The cerebrospinal fluid (Tranter) has been studied in human cases. Other volunteer workers have helped in the work or taken up separate problems—Dr. Gerdine, Dr. Newell, Dr. Naffziger, Dr. Hinman.

At this time the director and laboratory staff wish to express publicly their appreciation of the help given them by the physicians and surgeons of the University of California Medical School. Valuable material has been saved for study, and interesting cases referred for investigation. This material would be quite beyond our reach but for the kindly spirit of co-operation on the part of these physicians.

Tropical diseases are being studied by Dr. Walker. To further this work and explore virgin territory, Dr. Walker is on a trip

to the upper reaches of the Amazon River. At present his work is in Porto Velho, Rio Madeira, Amazon, Brazil. He is co-operating with Dr. Wolcott, who is in charge of the base hospital of the Madeira-Mamora Railroad. The parasitic disease carriers are being studied with particular reference to human disease.

For the coming year the trustees have decided to offer two student scholarships of \$600 each. These scholarships are open to medical students who have had one and one-half years' training in the University Medical School, or equivalent training. These students are enabled to get a broader training in research work and pathology, which will enable them to continue their medical work with greater advantage, and obtain a broader grasp of medical science. If desirable, this year's work may count as the fifth or "interne" year in medicine.

During this year the laboratory staff has lost three members by resignation, and Dr. Kocher has been granted one year's leave of absence. Dr. F. H. Rodenbaugh resigned to take up the private practice of medicine. Dr. C. R. Christiansen resigned because of impaired health. Mr. Z. Ostenberg resigned to take up work in industrial chemistry.

For the present school year three new appointments have been made. Dr. Alice Rohdè has been appointed Instructor in Research Medicine. She received her training at the Johns Hopkins Medical School. She has done special work with Dr. Walter Jones, Professor of Physiological Chemistry at Johns Hopkins Medical School; has spent two years in Berlin working with Professor Emil Fischer and the past two years with Dr. J. J. Abel, Professor of Pharmacology in the Johns Hopkins Medical School. She held the title of Instructor in Pharmacology at the Johns Hopkins Medical School. Her presence will be a great asset to the laboratory staff.

Dr. William J. Kerr has been appointed Fellow in Research Medicine. He graduated in medicine at the Harvard Medical School, and has served as an interne at the Massachusetts General Hospital. He has been granted a Harvard Medical School Fellowship, and will do work under this grant in this laboratory.

Miss Marjorie G. Foster has been appointed Fellow in Research Medicine. She received her training in Stanford University, and has done special work with Dr. Crawford and Dr. Addison in the Leland Stanford Medical School.

Respectfully submitted,

GEORGE H. WHIPPLE,

Director.

UNIVERSITY INFIRMARY

BERKELEY, July 1, 1916.

To the President of the University,

SIR: I have the honor to submit herewith my report of the University Infirmary covering the period from July 1, 1915, to July 1, 1916:

While the number of our dispensary and house patients has been less than in 1915, undoubtedly the result of our teaching of preventive medicine, still the professional care is becoming materially greater on account of our system of consultations, or group medicine. Surgery, as a relief for pathological lesions, as well as for reparative purposes, has increased yearly to a marked degree. We look forward to the time when the surgical fee, now necessarily demanded, may be so reduced that the students' semester fee for health insurance will cover the cost of that service also.

The University Physician and his associates are exceedingly grateful to the staff of the State Hygienic Laboratory and to the Department of Pathology for the valuable assistance extended to the Infirmary. It is with the aid of such facilities and consultations that group medicine has been successfully systematized, and has made the fame of the University of California Infirmary, founded by the late Dr. George F. Reinhardt, heard around the world.

It is not surprising among such a large student body as is enrolled in the University, to find a number of individuals possessing a bad hereditary endowment. This endowment, coupled with exciting causes, such as hard study and emotional stress, is an incentive to nervous breakdowns. Our clinical staff is

endeavoring to prevent these unfortunate cases by closer records of intrants, co-operation with the faculty and insistence upon students retiring from college upon the first development of such untoward symptoms.

Drs. Paroni and Gompertz have co-operated with the staff of the Women's Physical Education Department to safeguard the health of the women students by a system of physical examinations to determine their fitness before they are allowed to enter into any athletic activities or competitions. Several instructors have personally sent to the Infirmary for medical treatment such members of their classes as were observed to be in need of attention. This kind of co-operation is appreciated by the students and the Infirmary physicians.

The number of military excuses, which are granted by the University Physician, on account of feet disorders continues to increase. These ailments would be prevented by the adoption of proper foot-wear. Notwithstanding the advice and information given constantly to the student body by the Hygiene faculty as to hygienic shoes, the majority of students wear the fashionable models and suffer the resulting evils. To overcome this condition the military marching shoe, made according to the United States Army regulations, should be prescribed as part of the uniform. These shoes could be worn for all college occasions and they would, therefore, not create any added expense to the students.

An annex to the dispensary was built to house the new dental department and was fully equipped with two modern dental outfits. This valuable adjunct to our Infirmary system is presided over by two dental surgeons, Drs. Stoodley and Neff. It is needless to state that many focal infections are located and, thereby, numerous grave diseases prevented. The popularity of this department is clearly shown by the fact that appointments are being booked two months ahead.

The President's weekly visits to the Infirmary and his comforting words do much to brighten the outlook of those students who are unfortunate enough to be ill.

It will be seen from the statistics of the Infirmary that of the total number of house patients who applied for relief, only one

succumbed. This fatality was due to an incurable, fatal complication known as fat embolism.

During the past year an addition has been made to the Nurse's Home, which has overcome crowding and added to the comforts of the nurses. Sleeping accommodations have been provided for special nurses, while engaged at the Infirmary. A word of appreciation of the service of these noble women is very gratefully given, for without such devotion and valuable care success in medicine and surgery would be impossible.

The President in his last report realized the need of granting Infirmary privileges to the members of the faculty, and pointed out the fact that at present the institution is entirely supported by the students' fees. It is hoped, in the near future, that provision can be made and the Infirmary so extended as to conduct the same system for the benefit of the members of the faculty. When the opportunity presents itself for the erection of a new Infirmary and the faculty are allowed to participate in the various privileges it offers, the necessity will automatically develop for full time staff members. In the meantime, the clinicians who have served the Infirmary so well should be shown appreciation by a gradual yearly increase in their salaries.

Reports from the Department of Hygiene, from the Bureau of Communicable Diseases, and the statistics of the Infirmary are found under different headings.

Respectfully submitted,

ROBERT T. LEGGE,

University Physician.

IMMUNIZATION SERVICE

To the President of the University,

SIR: I have the honor to submit herewith my annual report on the immunization service conducted at the University Infirmary during the academic year 1915-16.

Smallpox Vaccination.—The value of the skin reaction as an administrative aid to smallpox vaccination was again demonstrated during this year.

There were one hundred and sixty-nine intrants who had neither had smallpox nor been previously vaccinated. Every member of this group responded to our inoculation by a well marked vaccinia.

There were two hundred and fifteen intrants who had been previously vaccinated, who showed no scars resulting therefrom. Of this group three gave the reaction of immunity, nineteen showed vaccinoids, and one hundred and ninety-four gave typical primary vaccinia vesicles.

One of the arguments of the opponents of vaccination is that vaccination does not protect against smallpox. These one hundred and ninety-four had all been vaccinated, some as many as seven times, and had been, in many cases, declared immune. Had they contracted smallpox it would have been considered a confirmation of the above argument against vaccination. Yet our results showed that these persons possessed no immunity whatsoever and had been, in many cases, misinformed as to their protection against smallpox. In fact, of the entire group of unscarred intrants only one per cent showed the immunity reaction.

Physicians should be impressed with the fact that there is no natural immunity to vaccination and that a failure to produce a typical vaccinia in a previously unvaccinated person is a warning to produce fresh virus.

On the basis of 2259 intrants examined during the year, the following percentages have been determined:

Intrants	1913-14 Per cent	1914-15 Per cent	1915-16 Per cent
Requiring vaccination	31	20	21
With history of smallpox	3	6	3
Showing no vaccination scar	19	16	17
Never vaccinated	16	6	7

Typhoid Vaccination.—During the second semester all persons who had been vaccinated before or during the second semester of 1914-15 were advised by notice in the "University Calendar," to report for a typhoidin skin test. In the event of a reaction of immunity failing to result from the test, revaccination was advised.

As a result of one hundred and seventy-six typhoidin tests, it was deemed advisable to revaccinate seventy-two persons. Fourteen of these were retested to determine the reappearance of the typhoidin reaction after revaccination.

Reactions to both vaccination and revaccination were recorded according to the method reported last year. In ninety-five per cent of persons vaccinated for the first time reactions were absent, four per cent reported a slight discomfort, and one per cent reported severe symptoms, such as chill, fever, and general muscular pain. In contrast to this, fifty-two per cent of the revaccinated were not affected, thirty-eight per cent reported slight discomfort, and fully ten per cent suffered from severe symptoms.

Statistics of the smallpox and typhoid vaccinations will be found with other statistics of the Infirmary on later pages of this report.

Respectfully submitted,

J. N. FORCE,

Assistant Professor of Epidemiology.

SMALLPOX VACCINATIONS

August 13, 1915–May 17, 1916

REACTION GROUPED ACCORDING TO CHARACTERISTICS OF SCARS

	Vaccinia			Vaccinoid			Reaction of Immunity		
	M	W	%	M	W	%	M	W	%
No scar—									
Previously unvaccinated	94	75	100	....	....	0	....	....	0
History of vaccination,									
but no scar	97	97	90	12	7	9	1	2	1
History of smallpox	1	3	27	4	4	53	2	1	20
Age of scar—									
Under 10 years	3	3	29	2	4	29	4	5	42
Over 10 years	6	6	41	7	8	53	1	1	6
Character of scar—									
Pitted	2	1	12	7	5	50	4	5	38
Smooth	15	12	46	8	15	39	4	5	15
Size of scar—									
Under 20 mm.	10	4	40	6	8	40	3	4	20
Over 20 mm.	1	2	27	3	2	46	1	2	27
Total vaccinations							484		
Left University							1		
Observations completed							483		

DENTAL DEPARTMENT

September 1, 1915-May 1, 1916

	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Totals
Gold fillings—									
Inlay .....	.....	.....	.....	.....	7	6	12	5	30
Malletted	1	2	8	14	2	13	5	5	50
Amalgam fillings	101	117	98	81	90	89	100	113	789
Porcelain fillings	3	72	42	51	39	43	49	25	324
Cement fillings	2	7	10	8	7	5	12	16	67
Gutta percha fillings .....	.....	3	4	.....	2	.....	.....	.....	9
Root canal fillings	1	9	13	18	12	22	23	13	111
Crown—									
1. Shell .....	.....	1	.....	4	1	5	2	3	16
2. With dowel .....	.....	.....	1	1	2	1	2	.....	7
Bridges—									
1. With facings .....	.....	.....	.....	.....	.....	.....	.....	2	2
2. Gold bar .....	.....	.....	.....	2	1	1	.....	.....	4
Ext. with N ₂ O & O	5	6	8	13	5	8	7	10	62
Ext. with Novocaine	1	2	3	2	3	6	4	2	23
Prophylaxis	35	55	34	40	16	33	45	.....	258
Cavity preparation	24	19	19	19	34	19	23	20	177
Gingivitis	1	2	1	2	1	.....	.....	.....	7
Acute pericementitis .....	.....	1	2	4	5	2	6	3	23
Pyorrhea, alveolaris	1	5	4	3	3	1	1	1	19
Alveolar abscess—									
1. Acute .....	.....	.....	.....	.....	.....	.....	.....	.....	0
2. Chronic	3	5	2	6	10	5	6	15	52
Inflammation due to 3rd molar eruption .....	.....	.....	.....	.....	.....	.....	.....	.....	0
Empyema of antrum .....	.....	.....	.....	.....	.....	.....	.....	1	1
Fractures of maxilla .....	.....	.....	.....	.....	.....	.....	.....	.....	0
Fractures of mandible .....	.....	2	.....	.....	.....	.....	.....	.....	2
Papilloma .....	.....	.....	.....	.....	.....	.....	.....	.....	0
Erosion	1	.....	3	2	3	.....	1	.....	10
Abrasion .....	.....	.....	.....	.....	.....	.....	.....	1	1
Hyperemia—									
1. Arterial	2	4	10	7	15	5	10	9	62
2. Venous	1	.....	.....	.....	.....	.....	.....	.....	1
Pulpitis .....	.....	.....	.....	.....	.....	.....	1	.....	1
Putrescent pulp abscess—									
1. Treat with formocresol....	15	17	9	11	13	8	11	2	86
2. Treat with NO ₂ O ₂	3	10	6	7	9	4	5	3	47
Pulp removal—									
1. Pressure with cocaine	5	4	.....	.....	.....	3	9	3	24
2. Intraosseous (Novocaine) ..	1	1	1	1	4	3	.....	2	13
3. AS ₂ O ₃	6	6	8	16	2	19	10	7	74
Capping of pulp, due to exposure .....	.....	3	1	2	3	1	2	.....	12
Wisdom teeth lanced	6	10	8	5	7	6	8	2	52
Abscess lancing, N ₂ O ₂	2	.....	1	.....	3	2	.....	.....	8
Treatments, miscellaneous	21	15	23	16	16	30	27	18	166
Reset (crowns, bridges, etc.)....	2	6	3	1	1	1	5	.....	19
X-ray .....	.....	1	4	8	12	18	19	11	73

TYPHOID VACCINATIONS, 1915-16

No. of Inoculations	Persons receiving Inoculations			Persons reporting Inoculations			Local Reaction						General Reaction						
	I	II	III	I	II	III	Slight			Severe			Slight			Severe			
							I	II	III	I	II	III	I	II	III	I	II	III	
Vaccinations,																			
Mar., 1913-May, 1915	1639	1602	1567	1605	1555	964	164	171	59	29	29	4	398	375	141	35	42	16	
Summer Session, 1915	77	67	65	68	66	18	21	15	7	3	0	1	32	37	8	4	1	1	
Vaccinations,																			
Aug., 1915-May, 1916	249	241	237	236	228	105	88	74	30	40	43	9	87	90	19	9	10	2	
Revaccinations,																			
Aug., 1915-May, 1916	72	55	40	62	45	23	19	12	2	13	5	0	25	22	3	6	4	0	
Total	2037	1965	1909	1971	1894	1110	292	272	98	85	77	14	542	524	171	54	57	19	

UNIVERSITY LIBRARY

July 1, 1916.

To the President of the University,

SIR: We have the honor to submit the following report on the University Library for the twelve months ending June 30, 1916.

The accessions of new books were as follows:

	Volumes	Volumes
By purchase:		
General fund	8,825	
Alumnus fund	48	
Class of 1887 fund	79	
Class of 1897 fund	1	
Class of 1900 fund	50	
Class of 1902 fund	22	
Denicke fund	2	
Foote gift	17	
General periodicals fund	19	
History 1 contribution	899	
Jucksch fund	2	
Knights of St. Patrick gift	74	
Meyer fund	23	
Moffitt gift	9	
Reese fund	19	
Sather fund	792	
Spreckels fund	1	
By binding of periodicals	1,965	
		12,847
By exchange		2,353

By gift:	Volumes	Volumes
Benjamin Weed	32	
Mrs. George Baugh	41	
Mrs. Phoebe A. Hearst	28	
Jacob Voorsanger	306	
Alfréd Greenebaum	195	
Louis Sloss	41	
Leo Eloesser	11	
Andrew D. White Historical Library, Cornell University	66	
J. C. Cebrian	304	
Thomas Rutherford Bacon Memorial	84	
Miscellaneous	4,132	
	<hr/>	5,240
Departmental accessions		7,956
		<hr/>
Total volumes received, 1915-16		28,396
Withdrawn, 1915-16		178
		<hr/>
Volumes received in library to June 30, 1916		333,506
Total recorded withdrawals (1912-1916)		622
		<hr/>
Total volumes in library June 30, 1916		332,884

A list of the more important works added to the library during the year is given in Appendix A.

Accessions Department.—Accessions for the year number 28,218 volumes as against 23,038 last year, bringing the whole number of volumes in the library to 332,884. The increase is due to the difficulty of obtaining continental publications under war conditions, resulting in increased purchases of English and American books at a lower average cost; to the accessioning of many departmental books not hitherto entered on the records by the general library; and to the greater number of gifts received or recorded by the library. Among the donors Mr. J. C. Cebrian is again pre-eminent with a further contribution to the collection in Spanish literature, which is already so deeply indebted to his generosity. The cataloguing of the Greenebaum and Voorsanger collections in Semitics was resumed after a lapse of several years; and the recording of the Thomas Rutherford

Bacon Memorial gift completed, showing a total of 984 volumes added to the library from this source.

The effect of the war became evident very promptly in the field of foreign gifts and exchanges, but only recently has the receipt of German periodicals through the mails been seriously interfered with. In common with other American libraries we are endeavoring to procure, through the Library of Congress and the Department of State, removal of the restrictions imposed by the British blockade upon the free passage of books and periodicals for educational institutions, and the release of mail shipments now detained in London. A few exchanges and gifts, in particular an interesting collection of British recruiting posters, went down in the "Arabic," and these it has not been possible to replace. No purchased material has been lost as yet.

This year special attention was given to the map collection, which has grown considerably in consequence. The principal additions are a complete set of the maps and charts of the United States Coast and Geodetic Survey with provision for continuation; about one thousand Hydrographic Office charts, chiefly of Pacific Ocean coast areas; some ninety maps issued by the Geographical Section of the British General Staff, dealing for the most part with European colonies in Africa and Asia and some Chinese provinces; the new series of physical and political maps of the continents issued under the supervision of Professor J. Paul Goode of the University of Chicago; a number of governmental and other maps of Central and South America, as well as of Cuba and parts of Mexico; English and French maps of the war areas; and pocket maps of California counties needed to complete the existing collection.

The year witnessed the beginning of a long-planned systematic attack upon our great accumulation of duplicates, and some progress was made before building operations put an end to all work in the basement. The bulkiest group, consisting of national, state, and some foreign government documents, was entirely disposed of. Several hundred volumes went to fill gaps or complete sets in the general and departmental libraries; more than eleven hundred volumes of California documents were

drawn back into the main collection to form a second file; several hundred volumes were supplied to other libraries by way of exchange or gift; and some hundreds more were returned to the offices of issue. At the same time steps were taken to prevent the accumulation of duplicate state documents in the future.

Catalogue Department, New Catalogue Division.—Reclassification and recataloguing have progressed but slowly, owing partly to the omission from the budget of any provision for a classifier and partly to vacation arrangements necessitated by the building operations, which brought the vacations for 1915-16, as well as those for 1914-15, within the period between July 1, 1915, and June 30, 1916, thus reducing the working year to ten months. Nine thousand nine hundred and seventy-four volumes passed through the new catalogue division this year; 3377 volumes representing current accessions in the reclassified portion of the library and 6597 volumes, recatalogued books mostly in class H. The total number of volumes classified according to the Library of Congress system and represented in the dictionary catalogue is 34,825, or rather more than one-tenth of the entire collection. The fact that it has taken three years to reach this point shows clearly the inadequacy of the original organization, even though it be conceded that the division has had to cope with more than its fair share of difficulties. In view of the increased provision for the coming year, however, we may anticipate without undue optimism a considerably increased rate of progress.

The work of the year has been confined in general to class H (Social Sciences). Reclassification of the 300-332 group of the old system has been completed with the exception of section 313 (Slavery), work on which will be postponed until the subject has been covered by the Library of Congress, and sections 305-308 (Education). A careful survey has been made of all classes of the old system, and printed cards ordered as far as available for all books (approximately 2500) which will fall into any of the reclassified sections. When these books are recatalogued the dictionary catalogue will represent practically the entire resources of the library in the field of classes E, F, H, and J.

Approximately 31,500 cards have been added to the dictionary catalogue during the year. An author list of the books in the reclassified section of the Bancroft Library has been prepared for eventual insertion in the dictionary catalogue. Copy for thirty-seven titles has been furnished the Library of Congress and 119 titles have been printed at the University Printing Office. These cards are more satisfactory than those heretofore printed by an outside firm in all respects except cost. Unless this can be reduced some other plan will have to be tried, which would be a source of regret, as we had looked forward to the assumption of this work by our own printing office as the end of our difficulties. The Northwestern University Library has subscribed to our cards during the year, making twelve libraries which now receive them regularly.

Catalogue Department, Old Catalogue Division.—This division has catalogued during the year some 12,170 books (15,071 volumes) and recorded 6538 continuations for the general library and the library of the Department of Mining, has sent copy for 105 titles to the Library of Congress, and has copied and filed in the public catalogue author entries for more than 3500 volumes in agriculture and medicine from departmental libraries outside of Berkeley. A union author list on cards has been prepared for the College of Agriculture, covering the greater part of the books in the department library, the University Farm at Davis, and the Citrus Experiment Station at Riverside.

Depository Catalogue.—Some 57,000 new cards have been added to the depository catalogue during the year. A correction must be made in the total reported last year, as a serious error has been discovered in the count taken some years ago, which affects both the Library of Congress and the John Crerar Library cards. The cards in the depository catalogue on June 30, 1916, approximate 846,000. A detailed statement with corrected figures is given in Appendix C. The combining in one alphabet of the depository cards has progressed through the letter J, the cards from K to Z still standing in two files. No further progress has been made in preparing reference cards for insertion in the depository catalogue.

Loan Department.—Circulation statistics show an increase over last year in calls for home and library use combined amounting to more than 56,000, or nearly 23 per cent. This is due in some measure to the heavy registration, consequent upon the Exposition, in the summer session of 1915, which is offset only in part by the drop in June due to the beginning of work on the additions to the library building and the virtual closing of the reading room. The prime cause, however, seems to have been the removal from open shelves to the loan desk of a large number of reserved books, the total held at the loan desk reaching 1750 volumes with a circulation of 141,595, an increase of 41 per cent over last year's circulation of loan desk reserves. The withdrawal of reserved books for over-night use shows an increase of 31 per cent over last year. Detailed statistics are given in Appendix D.

Heretofore books have been issued to students over the entire summer period, May–August, subject to recall if needed. Heavy demand in the summer session of 1915 necessitated the recall of many books so issued, and so much delay was experienced in securing their prompt return that a new plan was put into operation in the summer of 1916. Under this plan any student in good standing intending to return in the fall is permitted to draw books for use during the six weeks' vacation following the close of the spring semester, such books becoming due at the opening of the summer session.

The number of books retained overtime and for which it was necessary to send notices was slightly larger than last year; 5105 as against 4696 for 1914–15 (Appendix E). These figures cover both student and faculty charges. A scale of fines for non-reserved books amounting to 25 cents per volume upon the mailing of the first notice and for two days thereafter, increasing to 50 cents upon the mailing of the second and to \$1 with the issuance of the third notice; or to \$1 for any undue retention of a reserved book, was visited upon student offenders. Library fines for the year 1915–16 brought into the treasury of the University \$1,349. These fines were made heavy and the interval between increases short, in order to induce prompt return of

books, a matter often of very considerable importance. It was felt, however, that the marked decrease in the number of notices after the first (the number of first notices being more than five times the sum of the other two), while it might indicate the success of the system in procuring the desired result where intentional offenders were concerned, pointed also to the desirability of less stringent measures in cases requiring merely a reminder. A penalty justified by a deliberate infraction of rules involving inconvenience to others was felt to be excessive when applied to offenses due to carelessness and remedied promptly upon request. It was decided, therefore, beginning with the summer session of 1916, to abolish altogether the 25-cent fine corresponding to the first notice, while retaining the other two. Under this system a student returning his book promptly upon receipt of an overdue notice incurs no penalty; but heavy penalties are incurred by persistence in offense. The new system has not been in operation long enough to warrant comment upon its working. The effect, if any, upon the loss of books from the open shelves will be watched with interest.

Losses from Open Shelves.—As in previous years, the loss of books from open shelves in the reading room is serious, especially as most of them are taken from the reserve shelves, and their disappearance is a cause of great inconvenience, or worse, to students referred to them in class. It was with the intention of safeguarding the books in heaviest demand that the loan desk reserve collection was so largely increased this year; but it is impossible to foresee all the places where depredations will occur, and the loan-desk space is limited in any case. Losses from the reading room reached 36 volumes for the summer session of 1915 and 145 volumes for the autumn and spring semesters of 1915-16; or 181 volumes for the year, of which 138 were taken from the reserve shelves. In view of the increased use of the library, this compares favorably with the record of 1914-15; 176 volumes. It is, however, too high a percentage of loss; and the record covering several years shows that the trouble is increasing rather than diminishing. The remodel-

ing of some rooms consequent upon the additions to the building offers opportunity for a new method of handling class reserves, which seems to promise more security with the same freedom of access as at present. It is hoped that the opening of the fall semester of 1917 will see the new system in operation.

Reference Department.—The number of inquiries requiring research received at the reference desk showed no signs of diminishing (Appendix F), but the department was able nevertheless to undertake one new duty. Last January the reference department took charge of the unbound pamphlet collection and weeded out the accumulation of years. Beginning with that date, all pamphlets received which are adjudged worthy of preservation but not of binding have been listed on cards, which are kept on file at the reference desk.

In the last report attention was called to the need of a trained assistant to remain at the public catalogue, to explain its use and answer questions concerning it. During the past year a junior assistant was assigned to this duty for the afternoon hours (2:00–5:00 P.M.) and amply demonstrated the advantages of the plan, even though it was not possible to cover the morning hours. If, as now seems probable, pressure of work will prevent the future assignment of any member of the present staff to this duty, provision should be made for a trained assistant to devote her entire time to it. This is of prime importance if the catalogue is to render public service in any way commensurate with its cost, especially to the great body of undergraduate students.

Shelf Department.—The year has witnessed a continual readjustment of the books in the main stack, due partly to the crowding of the stack and partly to conditions imposed by the beginning of building operations. Of more than half a million books shelved during the year, approximately 238,000, or almost half, are assignable to one or other of these causes (Appendix G). The readjustment which will follow the occupation of the new portion of the building should reduce the labors of the shelf department very materially.

Since the occupation of the present building inventory has

been a continuous process, a little ground being covered each day and the entire library in the course of a year. This year the shelves were read throughout the library during the Christmas vacation. The work was carried on by ten assistants released during this slack period from the pressing duties of term time, and was completed in seven days. The new plan proved more satisfactory than the old in so many respects that it will be followed hereafter.

Losses from the stack amounted to 67 volumes as against 53 volumes last year. As stated above, the reading-room losses amounted to 138 volumes from the reserve shelves and 43 volumes from the permanent collection, or 181 volumes in all against 176 volumes for last year. Books lost while charged to readers reached a total of 77 volumes, which were paid for and reordered in regular course.

Departmental Libraries.—The annual inspection of department libraries this year covered twenty-two departments, all in Berkeley, and showed 158 volumes missing, 143 being department books. These shortages were reported to the department authorities. The fifteen general library books lost while on deposit in department libraries have been or will be replaced at the expense of the departments concerned. In view of the fact that some 8500 volumes belonging to the general library are now on deposit in various departments the percentage of loss is not high.

No particular improvement in the condition of the department libraries can be reported, and it is hardly to be expected that any will take place under the conditions now prevailing. Where department librarians exist at all they are in almost all cases clerks or stenographers whose non-library duties occupy most of their time. Very few department libraries have adequate accommodations even for readers within the department, and almost none have facilities for readers from outside. None of the department libraries maintains the general library schedule of hours; very few of them are open at night at all. Aside from any other aspects of the matter, the difficulties and inconveniences to readers resulting from the points mentioned have

confirmed the general library in its policy of declining to deposit in department libraries books or periodicals for which there is any general demand, or which are recognized as bearing upon the work of more than one department.

During the year author catalogues of the books shelved in the library of the department of Physiology and of those belonging to the department of Mining were prepared and installed.

Periodical Department.—The year was marked by various improvements in the system of records and in processes, particularly those touching the work of other departments of the library. Greater stress was laid upon the acknowledgment of gifts, which is now handled entirely in this department. A printed form of acknowledgment was adopted to supplement the postcard form and the personal letter employed hitherto.

Unusual delays in the return of books from the bindery was the cause of some complaint, but improved facilities in the new quarters should obviate this difficulty. Conditions in its old building constituted a serious handicap upon the work of the bindery, and its performance under the circumstances was highly creditable.

During the year 1000 titles were added to the list of serials currently received by the library, 80 by purchase, 387 by exchange, and 533 by gift. During the same period 1056 titles, for the most part serials formerly received by gift, were dropped, leaving some 7400 titles in the list as it stands today.

At some time during the coming year the Periodical Department will cease to exist as a separate entity, its functions of record, claim and acknowledgment going to the Accessions department and its public functions merging with those of the Reference department. The physical separation of the Periodical room from the reference and loan desks was a source of constant annoyance to readers and to the reference staff. The line of cleavage between the records of the Accessions and Periodical departments was not always clearly defined, and some loss of efficiency resulted and made itself felt both in the public service and in the order work. It is proposed to move the contents of the periodical room into the new reading room now

under construction on the main floor and adjoining portions of the stack, which will be fenced off and open to readers. This will bring the periodicals into close relation with the Reference department and the loan desk, and the public service will have ready access to the Periodical records in the office of the Accessions department.

Exchange and Gift Division.—The number of institutions on the exchange list on June 30, 1916, is 1315 as compared with 1231 a year ago. Seventy names were added and thirteen dropped during the year. Exchange relations were established with the National Library of Costa Rica, through which it is hoped that the official publications of that government may be obtained regularly. Arrangements were completed whereby this library was placed on the mailing list for the government documents of India and the Union of South Africa.

A strong effort to procure foreign material from the Exposition resulted in some valuable gifts and the acquisition of much statistical matter not easily obtainable in this country. Through the courtesy of the Imperial Japanese Commission, which was particularly generous in its co-operation, our collection was enriched by 75 volumes containing masterpieces of Japanese art from ancient times to the present, as well as fourteen painted screens and several large wall paintings. Other acquisitions from the Exposition are mentioned in Appendix B.

A systematic attempt to complete our collection of state and foreign geological survey publications has progressed through all the states of the United States, Great Britain, and Ireland; Canada and the British colonial possessions are next in order. The checking of current periodicals on economic and social subjects was continued, and resulted in the acquisition of much valuable material which otherwise would probably have escaped notice. Special collections for immediate use were made in various subjects as need arose, the requests coming from members of the Faculty or from the Reference department. These subjects included among others the current literature of peace and preparedness, municipal franchises, "Blue Sky" legislation, mothers' pension laws, and state railroad maps.

By arrangement with the Berkeley City Club the library took over the exchange distribution of the Berkeley Civic Bulletin, thereby increasing our slender resources in the field of political science and adding to our exchange list many institutions concerned with civic and municipal affairs to which the publications of the University are of no special interest. All material heretofore received by the City Club now comes to the library.

Library Staff.—On July 1, 1915, Miss Edith M. Coulter became reference librarian. Miss Coulter has had actual charge of the reference work since shortly after the occupation of the present library building, and the efficiency of the Reference department and the successful organization of its work on the present basis is almost wholly due to her. Miss Coulter spent her recent vacation visiting many of the larger university libraries in the East and the Middle West.

The benefit accruing to the library service from such visits of inspection should require no demonstration. The element of routine is so pronounced in most phases of our work that contact with new ideas, study of improved methods and first-hand knowledge of the trend of professional thought is vitally necessary to those charged with the working out of our problems. This stimulus lacking, stagnation inevitably results; and stagnation in the library promptly makes itself felt throughout the University. Our problems are all found in other university libraries, and study of their solution by others holds much of importance to us, both in respect to service and financially.

Our geographical location, remote from all the centers of library activity, both emphasizes our need and imposes limitations upon the satisfaction of it. Our heads of departments, and those assistants charged with responsibility for special phases of our work, should visit from time to time those libraries in which there is most to be learned in their respective fields and should observe methods, compare notes, and in general study conditions at first-hand. This can but prove of the greatest benefit; stimulating not only the individual, but through him his entire department. Unfortunately, under existing conditions this wholly

desirable result is difficult of realization. The members of the library staff receive no three months' vacation and no Sabbatical year. Their annual vacation is one month long, and it is a good deal to expect that this should be spent entirely in preparation for the work of the ensuing eleven months, even if the time were sufficient for an eastern trip, which it is not. Moreover, Berkeley is a long distance from the library centres of the East and the Middle West.

A plan which would meet some of the needs of the situation without imposing a heavy burden upon the University finances is here submitted. Let it be the declared policy of the library, accepted by the University authorities, to encourage vacation visits of inspection to important libraries by heads of departments or assistants holding positions of responsibility by extending vacation limits for such purpose, and by small allotments from library funds to meet expenses necessitated by such visits. The interests of the University would be safeguarded by requiring the submission for approval of the proposed itinerary; by limiting the frequency of such visits by one individual, the total number to be permitted in any one year, the extent of extra vacation and the financial allowance; and by requiring a written report in conclusion. It is suggested tentatively that some such schedule as the following might be adopted, to be increased only by express permission of the President:

Assisted trips of inspection by any individual, not to exceed one in three years.

Trips permitted in one year, total, not to exceed two.

Extra vacation allowance per individual, not to exceed one month.

Financial allowance per trip, not to exceed \$100.

Time of visit and proposed itinerary to be approved by the librarian and by the President.

A written report to be submitted to the librarian at the conclusion of any trip of inspection for which extra vacation or financial assistance has been granted.

Staff changes occurring during the year are noted in Appendix H.

Library School.—The reduction of available space and the noise and confusion in the library consequent upon building operations, as well as the disorganization of vacation schedules and the strain upon the staff resulting from the same cause, were the factors determining against any attempt to offer a course in library methods in connection with the summer session of 1916. To judge from the inquiries received the decision had disappointed many persons, and it is hoped that the course may be resumed next summer.

Additions to the Library Building.—The great outstanding feature of the year is, of course, the beginning of work on the additions to the building. These contemplate: (1) the addition of four tiers to the main stack, providing nine tiers altogether, and the installation of a second service elevator; (2) the paving of the court in rear of the stack and the erection of a roof and glass dome over stack and court, providing an enclosed space in which a second stack of the same size as the present may be erected gradually as needed; (3) the construction of a new reading room on the east side of the main floor at right angles to the present reading room, with a reference room at the point of the angle, forming an extension of the delivery hall to the east; (4) the completion of the main floor on the west and south, providing offices and work rooms for the staff along the entire west side, connecting with rooms for a future library school on the south side; (5) the construction of a second floor with a map room and seminar rooms; (6) the construction of an attic to contain small rooms to be assigned as offices to members of the faculty and larger rooms suitable for seminar purposes for the smaller departments; (7) the remodeling of the south side of the main floor so as to replace the small inside seminar rooms by a corridor and to lengthen the outside rooms to the standard thirty feet; (8) the installation of a rear entrance opposite the rear entrance of Benjamin Ide Wheeler Hall, the new classroom building, and a passage fifteen feet wide through the basement, terminating in a stairway leading to the ground floor; (9) the installation of a passenger elevator near the rear entrance, for the use of faculty and students assigned to second

floor or attic rooms, and (10) the installation of a women's rest room and lavatory at the north end of the west corridor, in space formerly occupied by part of the archives room and of the first three seminar rooms. Preliminary work began in May, during examinations, and it is expected that the new parts of the building will be ready for occupancy in February or March, 1917.

Naturally, this has involved a good deal of shifting, both of personnel and matériel. All seminar rooms have been closed for the summer. The south and west side ground floor rooms which are to remain will be ready for occupancy at the beginning of the fall semester; but the east side group is occupied by the library staff, which will of necessity retain them until its own quarters are ready. The removal of steel shelving and wooden furniture from the old to the temporary staff quarters and the temporary relocation of the contents of the archives room and of the west basement was carefully planned by Mr. Mitchell, and such part of the moving as fell to the library staff, as well as the relocation of all seminar books and the books in the portions of the main stack affected by building operations, was carried out under Mr. Dean's direction. Both planning and moving were admirably handled.

Publications.—A second, enlarged edition of Library Bulletin No. 12, Classification of books in the library, was published in October, 1915.

Inter-library Loans.—This is rapidly developing into an important feature of our library's activities. During the year we have made 229 loans (433 volumes) to other institutions, and 68 loans (125 volumes) to departments of the University located outside of Berkeley. Notwithstanding the large growth of our own collection of books, with presumptively better facilities to meet local demands, we have been obliged to borrow 92 times (212 volumes). From the beginning of the service of inter-library loans, authorized by the Board of Regents in 1894, only a single book has been lost, and this by failure to deliver by the express company.

Financial Statement.—The library budget for 1915-16 carried appropriations as follows:

Salaries	\$25,220.00
Assistance	19,000.00
Books	25,000.00
Binding	5,000.00
Expense	4,800.00
<hr/>	
Total	\$79,020.00

The appropriation for Books consists of the following items:

Income from gift funds restricted to specified uses	\$3,042.00	
Income from Reese fund (general)	\$2,806.00	
University appropriation	19,152.00	21,958.00*
<hr/>		\$25,000.00

* Distribution of \$21,958.00:

Current periodicals and postage	\$5,500.00
Purchase and completion of serial sets	2,500.00
Works of general interest	1,650.00
Librarian's fund	1,500.00
Special allotments	950.00
Departmental allotments on unit basis	9,858.00
	<hr/>
	\$21,958.00

Respectfully submitted,

J. C. ROWELL,
Librarian.

HAROLD L. LEUPP,
Associate Librarian.

APPENDIX

A. IMPORTANT ADDITIONS, 1915-16

Miscellaneous

- American antiquarian society. Sixty-five photographic reproductions of almanacs printed in Massachusetts before the year 1700.
- Archivio storico italiano, ser. 1, vol. 1-ser. 6, vol. 2.
- Argonaut, vols. 12-42.
- Bibliographical Society, *London*. Illustrated monographs, vols. 1-16. Publications, vols. 1-15. Transactions, vols. 1-12 and Index.
- Blondel, J. F. Réimpression de l'Architecture française. 4 vols. Bordeaux. Observatoire. Annales, vols. 1-14.
- Dodsworth, R., and Dugdale, W. Monasticon anglicanum. 8 vols.
- Le Génie Civil, vols. 1-33.
- Gray, G. R. The genera of birds. 3 vols.
- Great Britain. *Foreign office*. British and foreign state papers, vols. 1-94, 98, 101-104.
- Hooker, Sir J. D. Botany of the Antarctic voyage of H. M. discovery ships Erebus and Terror, in 1839-1843. 4 vols.
- Institution of mining and metallurgy, *London*. Transactions, vols. 1-9, 15.
- Livius Patavinus, T. Codex vindobonensis lat. 15 phototypice editus.
- Magasin de zoologie. 8 vols.
- New palaeographical society, *London*. Facsimiles of ancient manuscripts . . . ed. by E. Maunde Thompson and others, ser. 1-2. 6 vols.
- New York Times, daily and Sunday issues, Jan. 1, 1908-Aug. 31, 1914.
- Palestine exploration fund. Survey of western Palestine. 12 vols.
- Reeve, L. A. Conchologia iconica. 20 vols.
- Revue de philosophie, vols. 1-23 and general index.
- Revue et magasin de zoologie. 41 vols.
- Ruskin, J. Works, ed. E. T. Cook and A. Wedderburn. 39 vols.
- Saccardo, P. A. Sylloge fungorum, vols. 14, 16.
- Shortt, A., ed. Canada and its provinces, vols. 1-22 and index.
- Stationers' company, *London*. Transcript of the registers of the worshipful company of stationers from 1640 to 1708. 3 vols.
- Tokyo. Imperial museum. History of Japanese art, tr. by Y. Takenobu and K. Kawakami. 3 vols.
- The Tropical agriculturist and magazine of the Ceylon agricultural society, vols. 1-24.
- U. S. Hydrographic office, 942 charts.
- Victoria history of the county of Lancaster. 8 vols.
- Wied-Niewied, M. A. P., *prinz von*. Abbildungen zur naturgeschichte Brasiliens. Reise nach Brasilien in den jahren 1815-1817. 3 vols.

A. IMPORTANT ADDITIONS, 1915-16

Law

Commercial laws of the world, vols. 1-3, 5-8, 10, 13-18, 20-22, 24-25, 32.
 Dominion law reports (Canada), vols. 1-22 and Digest, 1914.

Great Britain. *Laws, statutes, etc.* Pickering's statutes at large, etc. to 1865. 105 vols.

Harvard law review, vols. 1-25 and Cumulative index.

Maryland. *Court of appeals.* Maryland reports, 1700-1885. 97 vols.

Maryland. *High court of chancery.* Reports, 1811-1854. 7 vols.

North Carolina. *Supreme court.* Reports, vols. 1-95.

South Carolina. *Courts.* Reports, 1812-1887. 108 vols.

B. SOME GIFTS OF 1915-16

The Government of France, through M. Tirman, commissioner of France to the Panama Pacific International Exposition, presented to the University, under the patronage of the Friends of France, the entire exhibit of books constituting the Library of French Thought and representing the most notable achievements of French scholarship—in all about 6000 volumes.

Mr. J. C. Cebrian presented (March, 1916) another valued collection of Spanish books (over 230 volumes), of which mention should be made of Alfonso V. de Aragon, *Itinerario* (one of 200 copies); a rare black letter astrological work by Perez de Vargas, 1563; Corachan's *Arithmetica demonstrada*, 1699; Gonzalez Holguin's *Gramatica de la lengua de Peru*; and Valverde's *Catalogo de lencería y encajes españoles*. His continued kindness will find expression in further gifts. Up to this date he has contributed about 2550 volumes, many being of high value or great rarity.

From a friend of the University, with funds placed at the disposal of Professor Schevill, have come other rare and valuable Spanish books.

From Señor Don José Carlos Rodrigues of Rio de Janeiro has been received one of 200 copies of his estimable *Bibliography of Brazil*.

Mr. D. J. Guggenhime of San Francisco has given \$100 for the purchase of modern Hebrew books, to supplement the large collection originally made by Rabbi Elias Grünebaum and given to the University some years ago by his heirs.

The Knights of St. Patrick have made their sixth gift of \$100 for Celtic books.

Mr. Harry East Miller, U. C. 1885, presented some 200 volumes of chemical journals, and a set of the *Illustrirte Zeitung*, 1870-1912.

Mr. John T. Gulick has given us his complete autobiography in manuscript. It is the life record of a man noteworthy for his scientific, as well as his missionary labors. It includes his diary while in Oregon and California in 1848-49.

There have been received from President Wheeler a large number of pamphlets—many relating to the present European war; from Mrs. George Baugh 43 volumes relating to Singhalese, Tamil and Bengali philology;

from the Massachusetts Commission at the P. P. I. Exposition 185 photo-facsimiles of colonial and early documents, autograph letters, etc.; and from Miss Annie Alexander the first 29 volumes of the Eclectic Magazine.

Two professors purchased and gave to the library about 160 lantern slides of views of the University campus, buildings, and interiors as photographed by Lange in 1893 and later.

The U. S. Coast and Geodetic Survey has made the library a depository for a complete set of all its charts and maps.

The library also holds in trust the books and pictures belonging to the University of California Club of San Francisco which was discontinued in 1915.

To the coin collection Mr. Donald C. Campbell, a student, gave one Byzantine and five Roman imperial coins. The cataloguing of the coin collection by Professor O. M. Washburn was suspended during this year.

Library Archives.—The Library Archives already contain a large mass of material—manuscript and printed, pertaining to the history and development of the College and the University. The task of segregating, classifying and cataloguing this material will engage the attention of the librarian at an early date.

A very important addition has been received this year from Mrs. Edward Gray, of Berkeley. It is the Diary of her father—Rev. S. H. Willey, for the years 1856 to 1860, which contains a list of all the marriages he solemnized in California during that period. Also Dr. Willey's letters to Rev. E. W. Gilman, of Lockport, N. Y., 1848 to 1851, giving an account of his voyage to California, and early experiences, and his first efforts towards the establishment of the College.

Also a bound volume of twenty letters from John S. Billings to Dr. Willey, 1883 to 1890, containing many references to the College of California.

C. DEPOSITORY CATALOGUE

The following additions were made to the depository catalogue during the fiscal year 1915-16:

	Additions	Approximate totals
Library of Congress cards	36,598	693,598
John Crerar Library cards	6,715	105,500
Newberry Library cards	3,083	4,102
Harvard University Library cards	4,159	28,318
University of Chicago Library cards	205	3,122
University of Illinois Library cards	5,156	8,932
University of Michigan Library cards ..	1,152	2,864
	<hr/> 57,068	<hr/> 846,436

C. DEPOSITORY CATALOGUE

In addition, 5099 revised cards from the Library of Congress and 259 revised cards from the John Crerar Library were received and filed. No cards were received from the Royal Library, Berlin.

D. CIRCULATION STATISTICS

Circulation statistics, not including periodicals issued from the periodical room, for the fiscal year 1915-16:

1915	Day use	Home use	Overnight use	Totals
July	13,414	7,014	581	21,009
August	9,696	4,514	163	14,373
September	24,406	7,360	911	32,677
October	25,792	7,510	1,042	34,344
November	26,513	8,257	1,176	35,946
December	13,561	6,239	883	20,683
1916				
January	14,176	7,203	328	21,707
February	25,062	8,669	962	34,693
March	27,480	9,455	968	37,903
April	26,642	8,350	1,110	36,102
May	6,991	4,460	470	11,921
June	2,930	3,250	17	6,197
	216,663	82,281	8,611	307,555

Summary:

307,555 July, 1915-June, 1916

251,031 July, 1914-June, 1915

56,524 Increase for year 1915-1916

E. OVERDUE BOOKS

Books requiring recall notices during the fiscal year 1915-16:

1915	July	August	Sept.	Oct.	Nov.	Dec.	
1st notice	305	370	411	371	410	377	
2nd notice	19	104	48	80	96	88	
3rd notice	6	10	4	6	7	9	
	330	484	463	457	513	474	
1916							
1st notice	176	483	544	413	226	108	Totals 4,194
2nd notice	76	89	71	76	32	40	819
3rd notice	11	11	12	6	10	....	92
	263	583	627	495	268	148	5,105

F. REFERENCE QUESTIONS

Questions requiring research handled at the reference desk during the fiscal year 1915-16:

1915-16	Morning	Afternoon	Evening	Totals
July	721	902	253	1,876
August	651	442	109	1,202
September	525	573	249	1,347
October	537	618	257	1,412
November	539	681	248	1,468
December	378	479	165	1,022
January	467	578	181	1,226
February	601	812	297	1,710
March	589	755	294	1,638
April	648	785	324	1,757
May	185	210	74	469
June	225	259	54	538
	<hr/> 6,066	<hr/> 7,094	<hr/> 2,505	<hr/> 15,665

G. SHELVING STATISTICS

The record of the year's shelving compared with that of 1914-15 is as follows:

	1914-15	1915-16	Increase
No. volumes shelved in the main stack, approximately	242,000	260,000	18,000
No. volumes shelved in reading and seminar rooms, approximately	20,000	25,000	5,000
No. volumes reshelfed due to reclassification, approximately	9,200	8,100	*1,100
No. volumes reshelfed due to crowded condition of stack, and building operations, approximately	200,000	230,000	30,000
Totals	<hr/> 471,200	<hr/> 523,100	<hr/> 51,900

* Decrease.

H. LIBRARY STAFF

The following changes have occurred on the staff of the library since June 30, 1915, probationary service not included:

Appointments:

Ruth B. Compton, junior assistant, July 1, 1915.
Leslie Wilde, junior assistant, August 9, 1915.
Edna M. Browning, junior assistant, April 1, 1916.
Edna M. Browning, junior assistant, June 15, 1916.

Resignations:

William M. Gwynn, senior assistant, June 30, 1916.
Charles A. Sweet, junior assistant, August 16, 1915.*
Emily R. Churchill, junior assistant, August 31, 1915.
Mabel H. Kelman, junior assistant, September 25, 1915.
Glyde Maynard, junior assistant, March 28, 1916.
Edna M. Browning, junior assistant, May 22, 1916.
William J. Shaw, attendant, February 29, 1916.
Harold Brainard, attendant, April 30, 1916.

* Transferred to hour basis.

LICK ASTRONOMICAL DEPARTMENT

LICK OBSERVATORY

MOUNT HAMILTON, July 1, 1916.*To the President of the University,*

SIR: I have the honor to submit herewith my report for the period July 1, 1915, to June 30, 1916.

Improvements in the supports of the cameras and guiding telescope carried by the Crocker equatorial mounting, and the clock-work, referred to in my last report, have been completed. The mechanism used at the eye end of the Crossley reflector in order to give motion at a computed rate to the guiding wires while photographing such faint moving objects as satellites, asteroids and comets was unreliable, and occasionally caused loss of time or imperfections in the results. The mechanism has been redesigned on different lines, so as to give positive and dependable motion to the cross wires at all times, and the construction is essentially complete.

All of the instruments of the Observatory, both principal and minor instruments, are in excellent condition.

The eclipse instruments and supplies left in Russia two years ago are presumably still in the keeping of the National Observatory at Pulkowa, twelve miles south of Petrograd. My letters of inquiry addressed to the Observatory authorities have failed to bring a response. All reasonably safe and economical plans for securing the return of the instruments should be considered in order that they may be made ready for the total solar eclipse of June 8, 1918, which will be observable under promising conditions in Oregon, Idaho, Wyoming, and Colorado.

The half-tone blocks for the mechanical reproduction of an

extensive series of Halley's comet photographs are about seventy five per cent complete, and the remainder should be finished in 1916. Experiments upon methods for reproducing the photographs of the solar coronas still continue, but results to our satisfaction have not been reached.

Many of my reports in the past decade have referred to the fact that the thirty-six inch Crossley reflecting telescope, so favorably known from its important contributions to astronomical knowledge, and still an exceedingly useful instrument, has become one of the relatively small reflecting telescopes devoted systematically to research. Several reflecting telescopes varying from forty inches to one hundred inches in diameter are now in use by or under construction for other observatories. Answers to important questions are limited in value and sometimes wholly prevented by the small scale of the nebulae and other celestial objects as photographed by the Crossley reflector. Its focal length is less than eighteen feet. It was chiefly the work of the Crossley reflector which called the attention of astronomers to the great power and efficiency of the reflecting telescope in many lines of research. It seems to me that the time has come to decide whether the Lick Observatory shall depend upon this pioneer instrument, now of relatively low power as reflecting telescopes go, or whether the institution shall be equipped with a reflector comparable in power with those now in use by or under construction for other observatories which surround us. In my opinion the State of California should be asked at the next session of the Legislature to make a liberal appropriation to cover (a) the expense of designing a great reflecting telescope, (b) the expense of designing a suitable dome and a simple building to house the telescope, and (c) the full cost of the mirror of the telescope, with the understanding that the next succeeding Legislature will appropriate funds for the completion of the telescope, its dome and accessories in the following two-year period. Experience has shown that three or four years should be allowed for securing the great mirror for such a telescope. Two years should be sufficient for the construction of the telescope mounting, the dome, and the building.

The elevating floor in the dome of the thirty-six inch refractor has been operated for twenty-eight years by hydraulic machinery. The system is giving trouble, frequent adjustments are required, the elevating motion is very slow, and there is an element of danger from the possible breaking of the counterweight cable connections. Similar floors in other observatories are operated safely, rapidly and economically by electric motors. The system should be transformed to use electric power.

The present method of heating the scientific buildings, offices and residences by individual stoves in nearly every room is inefficient and dangerous, and should be replaced by a central heating system, probably utilizing steam as the medium.

The building which at present contains the instrument-making and carpenter shops, the distillate engine for generating electric current, the storage battery, etc., is a hodgepodge of rooms built at many different times to meet new requirements as they arose. The architecture is poor and the construction cheap. The rambling building is within twenty feet of the great dome and is unworthy of its surroundings.

There should be a legislative appropriation available for expenditure in the year 1917 to transform the motive power of the elevating floor, to provide a central heating plant, and to construct a modest building to contain the heating plant, the engine and storage battery and the shops.

We are in serious need of a Zeiss stereocomparator, which we have been hoping to secure for fully ten years past, but for which funds have been lacking.

A generous share of our observing resources has been devoted in the past year to studies of the nebulae, especially of the so-called "gaseous" nebulae, whose spectra consist chiefly of bright lines. Spectrographic observations with the thirty-six inch refractor at Mount Hamilton and with the thirty-seven and one-half inch Mills reflector in Chile, for the determination of the velocities of approach and recession of the nebulae, have been continued. Sixty-six spectrograms for this purpose have been obtained in the year at Mount Hamilton by Messrs. Campbell and Moore, assisted by Messrs. Paddock, Sanford, and Green, and

sixty spectrograms at Santiago by Dr. Wilson, assisted by Mr. Scott. Many of the exposure times have been long, in some cases amounting to three or four full nights on one and the same plate. The radial velocities of one hundred and seventeen gaseous nebulae have been determined at the two observatories to date with an average of four spectrograms of each nebula. Only a half dozen unobserved objects remain on the Mount Hamilton programme, and not more than a dozen on the Chile programme. The spectra of these objects will be photographed when they come into observing position, and there should be no difficulty in completing the programmes of nebular radial velocities before the end of the calendar year. It is hoped that the radial velocities of nearly one hundred and thirty gaseous nebulae will have been well determined. There is no doubt that the results will be of high value in studies of the relationships of these nebulae to other classes of celestial objects.

In the summer of 1914 Messrs. Buisson, Fabry, and Bourget, at Marseilles, by the application of the interference methods, determined that the radial velocity of the great nebula in Orion varies considerably for different parts of the nebula. Immediately following the announcement, Messrs. Campbell and Moore began a spectroscopic survey of this nebula for the purpose of confirming and extending the French astronomers' results. Thirty-nine spectrograms were obtained in the past year in continuation of the study begun in 1914. Differences in velocity, amounting to as much as fourteen kilometers per second have been found for different parts of the central region of the nebula. In the coming fall and winter months we shall hope to complete the programme for this object.

In the course of our investigations on the Orion nebula we found that the adopted wave-lengths of the two bright lines near 5007A and 4959A, attributed to the hypothetical element nebulium, were seriously in error. We have made a new determination of the wave-length of these lines on the basis of nineteen spectrograms of the Orion nebula and of certain planetary nebulae. The resulting values, which are thought to be relatively accurate, are published in *Lick Observatory Bulletin* No. 279.

Observations of two of the brighter planetary nebulae, N.G.C. 7009 and N.G.C. 6543, secured with a spectrograph of high dispersion by Messrs. Campbell and Moore in November and December, 1915, gave the first definite evidence of relative motion within the planetary nebulae. The images of the two objects are approximately elliptical in form, with central nuclei stellar or nearly stellar. We interpret the results to mean that each nebula is rotating about an axis approximately perpendicular to the longer axis of figure. The central volumes of these nebulae seem to be rotating with moderate speeds, while the outer strata are rotating more slowly. The preliminary results of these investigations have appeared in *Bulletin* No. 278.

In the first half of the year 1916 we have extended this line of investigation to twelve other planetary nebulae. Sixty-one photographs have been taken in this connection. The results indicate the existence of internal motion in eleven of the fourteen objects. Internal motion is suspected in another object, and in the remaining two objects we find no evidence. Of the eleven objects which seem to show internal motion, the results are interpretable as simple rotation effects in five; in three the apparent rotational effects seem to be modified by some other phenomenon; and in the other three the rotation effects, if present, appear to be concealed by some other form of motion or by some other phenomenon which displaces or distorts the spectrum lines. The subject is one of great interest, thought to be intimately connected with the problem of the evolution of stars from nebular antecedents, and we plan to give it much serious attention during the coming year. The results already obtained indicate that the masses of the nebulae observed are many-fold greater than the mass of our solar system.

In addition to the spectrograms of nebulae described above, 74 in all, we have secured 363 spectrograms of stars at Mount Hamilton, and Dr. Wilson, assisted by Mr. Scott, has obtained 400 spectrograms of stars at Santiago. Many of these are of spectroscopic binaries whose orbits are under investigation. Others have been for the purpose of determining the most favorable conditions for measuring the velocities of stars whose spectra

contain poorly defined lines, and the remainder have been obtained in the progress of the regular programmes for determining the radial velocities of stars down to definite limiting magnitudes.

Dr. Green, University Fellow during the past academic year, has made an extensive study of the radial motions within the planetary nebulae N.G.C. 7009 and N.G.C. 6543, and has investigated the distribution of brightness throughout these structures, to assist in the interpretation of conditions existing in these objects. The results compose his thesis, not yet published.

As a research collateral to the spectrographic investigations of the planetary nebulae Dr. Curtis has used the Crossley reflector very extensively in the past year to collect data for depicting the forms of all the planetary nebulae available for observation from this latitude. Within the year he has exposed 178 photographic plates for this purpose, many of the individual plates containing several exposures of varying lengths. In a large proportion of the objects the difference in brightness between the strong central parts and the faint outlying structures are enormous; an exposure of one minute on slow plates may suffice to overexpose the brightest parts, whereas an exposure of an hour or two on rapid plates may be required to record the faint exterior structures. The planetary nebulae are on the whole of small angular diameter. Their images rarely cover more than a square millimeter on the Crossley plates. To reproduce them on a scale adequate for publication would involve an average enlargement of about fifty-fold. Such enlargements are generally unsatisfactory, and frequently misleading. To obviate these difficulties Mr. Curtis is making crayon drawings of the nebulae, each drawing a composite of the entire series of photographs of the corresponding object. It is planned to publish these drawings by the half-tone process.

The photographs of the planetary nebulae confirm the result obtained by the spectrographic observers, that the ring forms of nebulae are plentiful, but that extremely elongated rings, or rings seen edgewise, are not in evidence. The logical conclusion is that the so-called ring nebulae do not exist as true rings in two prin-

principal dimensions, but that they are in reality ellipsoidal shells of nebulous matter, with three principal dimensions, and that we see them as rings chiefly by virtue of their projection upon the two-dimensional surface of the celestial sphere.

Mr. Curtis has secured eighty-two photographs of spiral nebulae and star clusters in continuation of his programme of former years. These are almost exclusively of objects not hitherto photographed. The purpose is to secure permanent records of their forms and structure, to serve as the basis for future studies of motions within these bodies, or of the motions of the bodies as a whole.

Mr. Wright has continued his studies on the distribution of the materials within the gaseous nebulae, and on the relations between these nebulae and the Wolf-Rayet stars, described in considerable detail in my last report. He had planned to make extensive use in the past year of the new ultra-violet spectrograph, provided by a grant from the Draper Fund of the National Academy of Sciences, and constructed in our shops, but unfortunately the war conditions existing in the countries which supply optical glass prevented us from securing some of the lenses to complete the equipment. The receipt of a concave quartz lens early in 1916 made it possible to use the apparatus as a "slitless" spectrograph in connection with the Crossley reflector. The combination is a powerful instrument of research when applied to the study of the distribution of the materials composing the smaller gaseous nebulae. When such a nebula is photographed with this instrument, each distinct radiation in its spectrum records an image of the nebula with practically the same faithfulness of detail that characterizes a direct photograph with the Crossley reflector. In this way some very striking differences in the form of the same nebula, as recorded through the medium of one or another of its characteristic radiations, have been detected. The same method had already been used by other astronomers, and had led to the detection of such differences in the composition of certain nebulae, but the present instrument is a great advance in efficiency, and affords such a wealth of detail in the nebular images that it immensely extends this im-

portant field of investigation. The nebulae in Dreyer's New General Catalogue, numbers 6543, 6826, 7009, and 7662, may be cited as objects whose images exhibited marked differences in form when photographed by the radiations corresponding to the various bright lines in their spectra. For example: in number 7662 the image formed by light of wave-length 3727A differs decidedly from the hydrogen and nebulium images, and the helium image resembles none of the others. The importance of these results in the study of the evolution of nebular forms into later stages of existence is evident, and it is hoped that the investigation may be applied to a large number of the gaseous nebulae.

Numerous other features of nebula spectra have been disclosed by the use of this spectrograph. Two strong lines in the ultra-violet spectrum, previously unobserved, have been detected, and a continuous spectrum, confined to the ultra-violet region, has been photographed in such of the brighter nebulae as have come under observation. In nebula N.G.C. 2392 the spectrum line at 4686A seems to be exceptional in that it exists both in the nucleus and in the outer nebulosity; and for the central region of the same nebula a number of the spectrum lines have shown abnormal displacements.

Mr. Sanford, Martin Kellogg Fellow during the past year, has entered upon an extensive programme, involving long exposures with the Crossley reflector, in a search for information bearing upon the relation of the distribution of the spiral nebulae to the Milky Way. It is a fact that the gaseous nebulae are with few exceptions located in the Milky Way, whereas the spiral nebulae seem to avoid the region of the Milky Way. These remarkable phenomena are in the forefront of present astronomical interest.

Several years ago the second magnitude star β *Ursae Majoris* was announced from Europe to be a spectroscopic binary star, on the basis of observed variations in the radial velocity. The early Mount Hamilton observations seemed not to confirm the variation. To test the matter further, a series of thirty-six spectrograms was secured in February, 1916, which were measured in duplicate with extreme care by Dr. Paddock and Miss

Hobe. The results seem to indicate that the radial velocity is constant, or that any existing variation must be very small. The evidence has been published in *Bulletin* No. 284.

Extensive assistance in making the spectrographic exposures on nebulae and stars has been given by Messrs. Paddock, Sanford and Green. Dr. Paddock and Miss Hobe have assisted in the measurement and reduction of the spectrograms of the year, and they have measured and reduced many earlier plates which for various reasons needed remeasurement. Mr. Paddock is engaged in determining the orbits of certain interesting spectroscopic binaries.

Mr. Tucker has completed the reductions of the meridian circle observations made by him in 1914. The stars concerned, six hundred in number, are serving as the standards of reference for the measures of photographs of the equatorial zone of the sky containing them, as secured by Director Schlesinger of the Allegheny Observatory. Some interesting deductions relating especially to the accuracy of the observations and to the average proper motions of the stars have been published in *Bulletin* No. 283.

In 1916 Mr. Tucker has been observing the zenith distances of bright stars to test the diurnal change of atmospheric refraction at this station, in accordance with a programme arranged to bear directly and efficiently upon the question. The results from those parts of the programme thus far completed confirm his earlier conclusion, derived from certain observations made here in 1905-06, as to the existence and the amount of a refraction change which the refraction tables do not predict, and which is a function of the hour of the day. This change amounts to at least 0.75 times the tangent of zenith distance, or about one per cent of the total refraction correction. The change not accounted for by the tables takes place chiefly in the hours near sunset and sunrise. As is well known, the atmospheric refraction is a function of the air temperature and air pressure, as read from the thermometer and barometer necessarily at or near the level of the observer. The explanation of the difference between the computed refractions and the refractions actually observed prob-

ably lies in the fact that the thermometer and barometer readings are too local to be representative, and that they fail to take into account the disturbances created in the atmospheric strata of different heights near the times of sunrise and sunset.

Dr. Aitken made 1279 micrometer measures of double stars with the thirty-six inch refractor in the year. His attention was devoted mainly to the double stars discovered by himself from ten to sixteen years ago, his motive being to detect any pairs of stars which are in comparatively rapid orbital motion. Nearly eight hundred pairs were remeasured in the year, and about fifteen per cent of these show decided motion in the interval since discovery. Several pairs give promise of having short revolution periods. Others are of interest because the measures show that the two components of a pair have a common motion through space and hence are physically connected. The more rapidly-moving binary stars discovered by earlier observers were also kept under observation, such measures being secured as were most needed in the study of the orbital motions.

Very little searching for new pairs was done in the year, but thirty-four doubles were discovered.

New orbits were computed for the double stars β 80 and β 1111, and a first orbit was computed for the pair Σ 1865 (*Zeta Bootis*). Mr. Aitken has continued his statistical study of double stars, but the results are not yet available.

Mr. Aitken made comet measures in the year as follows:

Comet <i>a</i> 1915 (Mellish)	3 nights
Comet <i>d</i> 1915 (Mellish)	4 nights
Comet <i>e</i> 1915 (Taylor)	4 nights
Comet <i>a</i> 1916 (Neujmin)	4 nights
Comet <i>b</i> 1916 (Wolf)	1 night

Nearly all of these measures were utilized by members of the Berkeley Astronomical Department in computing the orbits of the bodies.

Mr. Aitken has made position observations of the star recently discovered by Professor Barnard, at the Yerkes Observatory, which is remarkable for its great proper motion. He has con-

confirmed Barnard's result that the annual motion of the star is approximately ten seconds of arc—the largest motion known to exist for any star.

Messrs. Campbell and Moore have determined the spectral type (Mb) of Barnard's star, and its radial velocity (about 125 kilometers per second approach).

Messrs. Sanford and Green have photographed comets with the Crossley reflector as follows:

Comet Neujmin	12 nights
Comet Mellish	12 nights
Comet Taylor	12 nights
Comet Wolf	3 nights

With the same instrument they have secured twenty photographs of the fainter satellites of Jupiter, to determine the positions and to improve the computed orbits of these small bodies.

Observations of certain interesting variable stars, by means of a photo-electric-cell photometer attached to the twelve inch refractor, by Professor Joel Stebbins, of the University of Illinois, assisted by Mr. Wallace Campbell, in the summer of 1915, were referred to in my last report. The results abundantly confirm the belief that this sensitive instrument is going to contribute enormously to our knowledge of variable stars, and of stellar conditions in general, by virtue of its high accuracy, reliability, and speed. The Lick Observatory, with its atmospheric conditions ideally adapted to the requirements, ought to plan for an extensive and systematic study of variable stars by means of this form of photometer, attached as may be required to the twelve inch or thirty-six inch refractors, or, in special cases, to the Crossley reflector. I should expect that investigations along this line would bring returns as rich as any recorded in the history of astronomy.

It would also be extremely fortunate if provision could be made to apply systematically and very extensively the thermopile, as developed and applied here by Dr. Coblentz in 1914 to the study of stellar radiations. Mr. Coblentz has recently shown that the sensitivity of the apparatus used at Mount Hamilton can

be increased at least one-hundred fold. While his work here was in the nature of a preliminary survey to test the possibilities of the instrument and method, it is easy to see that a very rich field of investigation is inviting development by this means.

It is not practicable to refer to many investigations of a minor nature conducted within the year.

In the first years of the 1890's it became apparent to me that a solution for the motion of the solar system through space could not be satisfactory unless it rested upon observations of the stars of the southern sky as well as of the northern, and as early as 1894 I expressed the hope that it would be possible for me to conduct an expedition to the southern hemisphere to secure the spectrographic observations for this purpose. The opportunity came late in 1900 when Mr. D. O. Mills generously undertook to finance such an expedition. It was expected that the astronomers on the expedition would be absent from this country about three years, in order that the actual observations should cover two years; one year being consumed in travel back and forth, in the search for a suitable observing station, preferably on the summit of a mountain where diurnal ranges of temperature are relatively low, and in the erection of the buildings and instruments. Mr. Mills' gift provided for the instruments and for a three-year expedition, as described. Before this period expired the surprising richness of the field of observation and discovery became apparent, and a continuation of the work was clearly so desirable that Mr. Mills provided for additional equipment and for five additional years of observing. His lamented death occurred early in January, 1910, a year and a half before the expiration of the interval covered by his provision. When the subject was brought to the attention of his son, Mr. Ogden Mills, the latter was pleased to assume the financial obligation for two additional years. His generous provision was later renewed for a second period of two years, and again for a third period. Mr. Mills has now notified me that he can no longer continue the support. I have considered other ways and means of prolonging the life of the expedition, but at present there is no other conclusion in sight than that the expedition must cease activity

early in the year 1917. This result, if unavoidable, will be extremely unfortunate, as there are years of exceedingly fruitful work in sight for which the expedition is precisely equipped. A cessation of contributions concerning stars and nebulae in the southern hemisphere will not be the chief regret; by far the greatest misfortune will lie in the fact that a cessation of activity in the southern hemisphere will detract enormously from the strategic power of similar observations in the northern hemisphere. Satisfactory solutions of the great problems of the stellar system demand that the observations upon which they rest shall be distributed as uniformly and as homogeneously as possible over the entire celestial sphere. The D. O. Mills Expedition is outfitted by instrumental equipment, and still more valuably by experience, to observe the radial motions of the stars and nebulae. Many great telescopes, both refractors and reflectors, are engaged extensively in precisely this line of investigation in the northern hemisphere. The southern hemisphere has depended to a major degree upon the D. O. Mills Expedition and to a minor degree upon the Cape of Good Hope Observatory. The latter most excellent institution has contributed a limited number of radial-velocity observations of the brighter stars, made by means of a comparatively small telescope. What will transpire as to spectrographic observations of celestial radial velocities in the southern hemisphere if the D. O. Mills Expedition ceases activity will remain for the future to show. Regrets are blended with satisfaction that the life of the expedition, originally estimated at three years, will have covered fourteen years, and that the efficiency of the plans and the fruitfulness of the results have been even greater than was anticipated.

The annual Lick Observatory lectures in the Berkeley Astronomical Department were delivered this year by Messrs. Aitken and Curtis.

Mr. Curtis is a member of the teaching staff of the current Summer Session of the University.

A considerable number of lectures were delivered in institutions, societies, clubs, etc., in the past year by members of the staff. Mr. Aitken was a lecturer on the Earl Foundation of the

Pacific Theological Seminary. Mr. Campbell delivered an address as president of the American Association for the Advancement of Science on August 2, 1915. Mr. Campbell, as president of the American Association, presided at the general meeting of the Association in Columbus, Ohio, in December, 1915, and he delivered an address on "The Evolution of the Stars" at a joint session of the American Association and of the Second Pan-American Scientific Congress in Washington, D. C., on January 3, 1916.

Mr. Campbell was one of the delegates from the United States Government to the Second Pan-American Scientific Congress.

Mr. Campbell has been elected to foreign membership in the Royal Academy of Sciences, Madrid, and in the Russian Astronomical Society, Petrograd.

The Director acknowledges the continued cordial support of the staff, both at Mount Hamilton and at Santiago, Chile.

Respectfully submitted,

W. W. CAMPBELL,

Director of the Lick Observatory.

DEAN OF THE LOWER DIVISION

BERKELEY, July 1, 1916.

To the President of the University,

SIR: I am sending herewith a report on the work of the office of the Dean of the Lower Division for the year ending June 30, 1916.

The duties and responsibilities of this office are rather varied. They are not very clearly defined and are not entirely limited to matters pertaining to the Lower Division. Duties of the latter type include general supervision of admissions, general direction of incoming students at the beginning of the college year, the approval of study-lists of freshmen and sophomores in the College of Letters and Science, and some questions having to do with the general welfare of the two lower classes. Other matters not limited to lower division students alone are the general housing problem, the publishing of approved lists of boarding and lodging houses, the relation of fraternities and other student organizations to the University, the work of the Committee on Disqualified Students, etc. Some questions pertaining to students in the upper division of the College of Letters and Science are also referred to this office, but it is hoped that with the appointment of a dean for this college a more sharply defined division of responsibilities may be possible.

With the large increase of the students in the University has come a congestion in many of the lower division courses. For efficient teaching in certain subjects, small classes are necessary. This is not now possible with the present staff in some of the departments. There is also a growing tendency to meet an unexpected increase in registration in courses of a particular depart-

ment by the appointment of inexperienced teachers chosen from amongst our graduate students. I believe that there is considerable room for improving the efficiency of the teaching in the lower division, both by making possible smaller sections and by the employment of better trained teachers.

The plan adopted in 1915, of inviting senior men to assist this office in directing and advising incoming freshmen, has been continued this year and the services of these men have been exceedingly helpful during the opening days. Still more will be accomplished when the mechanical routine of registration is made more systematic and adequate arrangements have been perfected for bringing new students in touch with their senior advisers. These men help the freshmen over the routine of the registration week, and direct them in a great many ways in which their faculty advisers cannot direct them.

Lists of approved boarding and lodging houses for men and women students, respectively, are published at the beginning of each term. Women students in the first year of residence are required to have their boarding places approved by the Dean of Women, but no systematic effort is made to direct the men students to approved houses. While perhaps only a relatively low percentage of men students live in approved houses, we believe that the money and effort expended in preparing these lists is entirely worth while. Proprietors of boarding and lodging houses have shown a desire to co-operate with the University and to meet its requirements. Evidence of their desire to be on the approved list is indicated by the fact that between five hundred and six hundred apply annually for this privilege.

During the year we gathered statistics from all undergraduate students as to their manner of living, and touching also the question of self-support. It is of interest to note that over 22 per cent of the men students are wholly self-supporting, and that 33 per cent more are partially self-supporting. For women students 9 per cent are wholly self-supporting, while 11 per cent more report themselves as partially self-supporting.

The improvement in scholarship of the fraternities, noted in previous reports in the last four or five years, continues. During

the spring semester of 1916 the average scholarship standing of all fraternities and house clubs exceeded that of all men not affiliated with any organization, but for the previous fall term the scholarship of unaffiliated men was the higher. More and more attention is being given to scholastic standing by the members of fraternities themselves, stimulated and encouraged also by their national organizations. In the spring of this year the question of publishing the complete record of organization scholarship standings was discussed with representatives from the different fraternities and clubs, with the result that it was voted by a substantial majority of the organizations to make public the scholastic standing of the various fraternities and clubs, rather than to publish an alphabetical list of those whose scholarship was above that of the average of the undergraduate men of the University, a procedure which had been followed since December, 1914. This list is to be given to the press about the first of August in time for inspection by prospective freshmen, and wide use has been made of it by men expecting to join fraternities, and also by their parents. The scholastic standing of a fraternity is not always a sure index of the type of men belonging to it. In most cases, however, continued low standing of a fraternity indicates not only the attitude of its members toward scholarship but also a lack of internal supervision and organization. To indicate the general scholastic trend of the various organizations at the University, it was decided to publish, in addition to the term averages, within which the fluctuations might be more or less temporary or accidental, averages computed over a period of four years. This procedure will be continued for the present.

Respectfully submitted,

T. M. PUTNAM,

Dean.

MEDICAL SCHOOL

SAN FRANCISCO, July 1, 1916.

To the President of the University,

SIR: I have the honor to submit the following report of the Medical School for the year 1915-16.

During the past year the Departments of Anatomy and Obstetrics and Gynecology have been thoroughly reorganized and placed upon a most satisfactory working basis. Active work in the Hooper Foundation has begun and has proved already to be of great value to the clinical departments of the School.

The Department of Biochemistry and Pharmacology has been separated from Physiology, provided with an adequate budget and placed under the directorship of Professor Robertson.

A Department of Preventive Medicine and Hygiene has been established with Dr. W. A. Sawyer, Secretary of the State Board of Health, at its head. With the coöperation of several members of the State Department of Public Health, of the University and of the Health Officer of San Francisco the work of the Medical School can be made to count most effectually in the cause of preventive medicine in the state.

As the new University Hospital nears completion the necessity of new buildings on the Parnassus site becomes more and more apparent. A nurses' home and an out-patient building are required in order to render the work of the new hospital properly effective, and a new building for the Departments of Anatomy and Pathology should be provided as soon as possible in order to consolidate the entire Medical School in San Francisco.

DEPARTMENT OF ANATOMY

A report of the activities of the Department of Anatomy for the year 1915-1916 must take account chiefly of readjustments. The department has for ten years occupied temporary quarters adopted in its precipitate removal to Berkeley in 1906. These quarters are ill adapted to its work from every standpoint of location, structure and arrangement, yet the marked contrast which they present to the housing of the other fundamental medical sciences does not seem to me worthy of thorough-going correction until the concentration of the Medical School at its Parnassus site in San Francisco. The funds necessary to construct the new home of the University Press and for remodeling its old quarters to our use have been advanced by a loyal friend of the University. As a result the badly crowded space where routine anatomical instruction was barely carried on has been enlarged sufficiently to give quarters for elective courses and facilities for research. Among the latter may be mentioned a dark projection and developing room, a wax plate pouring room, and animal quarters, part of which are electrically heated for breeding experiments on mice and rats.

Much time has been occupied in the material tasks of providing these conveniences. The delay necessary before they could be undertaken has given us at this date but little more than two months with these increased facilities at hand.

Our facilities will make possible a long line of experiments which can be brought to bear on the causes underlying the histological structure and alteration of structure in tissues and organs. Just at present our interest centers in the behavior of the ovary under various experimental as well as normal conditions. We are peculiarly fortunate in having associated with us in this work Professor J. A. Long who has for some time conducted a series of standardizing observations on ovulation in the mouse and rat. His data can fortunately be brought to bear on various other studies which members of our staff have been engaged upon. It will now be possible to undertake a statistical study of follicular atresia. A brief summary of observations on the behavior of the atretic follicle towards vital stains was made at the last

meeting of the American Association of Anatomists in New Haven in December, 1915, and I look forward to the opportunity which we now have to make quantitative studies of these phenomena in the ovaries of animals under various experimental and physiological conditions or at various epochs in the life cycle. I am pleased to report that Professor Long of the Department of Zoology has been granted a sabbatical leave of absence to take effect from July 1, 1916, to July 1, 1917. Dr. Long plans to remain in residence in the laboratories of the Department of Anatomy in order to continue certain researches in conjunction with us. In particular, we have the opportunity now of studying the effect of varying the ovulation cycle on the growth and degeneration of corpora lutea, the effect of lactation on the ovarian cycle, and the effect of ablation of one ovary on the performance of its mate. In addition, Dr. Long will carry on independently his *in vitro* studies on the living eggs of the rat and mouse.

Other members of our Staff, notably Professor G. W. Corner, will be helped very considerably in their research activities by the prosecution of this work. Dr. Corner has completed a correlational study on the corpus luteum and the stage of pregnancy in the pig and plans to look into this question in other animals where similarly complete material is at his disposal. He began his year's work with an investigation into the nature of certain bodies in the cells of the corpus luteum of swine and which he had previously found (Publications of the Carnegie Institution, No. 222) to be present only during the earlier stages of pregnancy. They had been assumed to be of the same nature as the intracellular canalicular apparatus discovered by Golgi in other cells, but this has been disproven and the two structures shown to exist side by side in the same cell. The appearances in question are now found to be due to the swelling of cell lipoids in slow fixation in aqueous solutions. An unexpected clue is thus given, however, to the presence and nature of the luteum cell lipoids and has led him to attempt to isolate and identify the substance thus characteristic of the corpora of early pregnancy. It will also now be possible for him to institute careful comparisons of the physiological effects of extracts of corpus luteum from

various periods of its cycle. We have been much gratified at the coöperation of the Oakland Meat and Packing Company, who have given us a small laboratory room in which to conduct our work and with the kindness of Professor J. I. Thompson of the Department of Agriculture stationed at Davis.

Professor Moody has continued certain studies on the influence of acetone on the reproductive organs and on the products of conception and has further undertaken an investigation of the anatomy of certain mammalian embryos which may serve as type stages.

Dr. P. E. Smith has continued his work on experimental ablation of the hypophysis in Amphibia. Lack of any sort of rearing pond has seriously interfered with this work in the past, and I am glad to report that a simple concrete device now places adequate facilities for such work in our hands. In addition, Dr. Smith has undertaken a histogenetic study of the hypophysis in the very complete series of growth stages which we can now secure from our colonies of the rat and mouse.

Dr. Katherine Scott has carried further her study of the cytology of connective cells in animals treated with vital azo dyes. Her studies were begun in connection with the work I have carried on for the last few years with an extensive series of dyestuffs of this class and have an important bearing on our conceptions of the manner of action of these compounds. Schulmann and I had noted in our preliminary account that the two chief cells of the connective tissues, the fibroblasts and the wandering cells, differ markedly in the manner of their response to the vital stain. Tschaschin then announced that the differing behavior of the cells in question was due to an elective vital staining of the mitochondrial apparatus of fibroblasts, but his criteria for the identification of these bodies did not satisfy us. Dr. Scott's restudy of the question, carried out on living cells, has shown that the greater part of the mitochondrial apparatus is usually unaffected by these dyes. Measurements of the diffusion rates of dyestuffs of biological importance have been undertaken by us as well as the determination of their sensitivity to electrolytes. Through the coöperation of Dr. C. L. Schmidt,

Research Assistant in the Department of Pathology and Biochemistry, it will also be possible to determine the hydrogen ion concentration of series of representative members of the various dye subdivisions or groups.

We have instituted efforts to found an excellent collection of material for the study of human embryology. I am pleased to report that this material can be stored in fireproof quarters which have been temporarily assigned to us in the Hearst Memorial Mining Building. This space has also accommodated the artist of the department, Mr. Willard C. Shepard, who, in accordance with what I believe is a wise policy has been of assistance generally in the Medical School while making his home with us.

In conclusion I believe it wise to emphasize the need of more liberality in the programme of required studies in the School of Medicine and in particular the need for that modicum of time necessary for reflection or advanced work. This is true as regards the time which is at present assigned for work in each division of the fundamental medical sciences, and it is particularly true in the division of Anatomy. Only the absolutely required work can be carried out on such a programme—a system which will supplant with pedantry the incentive to original thought and effort.

Respectfully submitted,

HERBERT M. EVANS,

Professor of Anatomy.

DEPARTMENT OF PHYSIOLOGY

All the members of the staff of the Department have been on duty during the year, and all have in addition to their teaching work been more or less engaged in research.

In the field of Physiological Chemistry and Pharmacology Associate Professor Robertson has continued his researches upon the physiology and biochemistry of growth, which, among other results, have yielded a method of isolating a growth-controlling substance (Tethelin) from the anterior lobe of the pituitary body. In collaboration with Assistant Professor Theodore C. Burnett he has also studied the effects of Tethelin and of other substances extracted from the anterior lobe of the pituitary body upon the growth of carcinoma. Through the kind coöperation of Dr. N. K. Foster statistical studies of the growth of Oakland school children have been initiated and have already yielded results of interest and possible practical importance. Mr. C. L. A. Schmidt has been enabled through a grant from the Hooper Foundation, to carry out extensive researches on the preparation and antigenic properties of compound proteins. Dr. Koji Miyake of Sapporo Agricultural College, Japan, has carried out investigations on the influence of salts and of alcohol and glycerol upon the rate of solution of proteins. Dr. E. S. Sundstroem has carried out important investigations on the effects of high altitude upon metabolism. Mr. J. A. Marshall has undertaken investigations upon the chemistry of saliva which have led to the important result that by analysis of the saliva it is possible to determine to what extent any individual may be liable to dental caries. Dr. C. B. Bennett has investigated the antigenic properties of a hitherto undescribed protein which he has isolated from red blood corpuscles. Mr. R. M. Jewett has determined the non-protein content of the blood sera of a number of different animals. Mr. Homer Righetti has investigated the changes in the composition of blood serum resulting from immunization against typhoid. Messrs. Laurence R. Taussig and Fletcher B. Taylor have investigated the effects of nephritis upon the composition of blood serum. Miss Ethel Cutler has determined the

effects of feeding cholesterol and lecithin to the mother upon the growth of suckling mice, and Mr. Jas. B. McNair has carried out investigations upon the constituents of the sap of poison oak.

In Physiology Associate Professor Maxwell has continued his studies on the function of the pituitary. He has proved that the retarding effect on growth is not due to an indirect action through the thymus. He has also been engaged in investigations on the cause of parathyroid tetany. Assistant Professor Theodore C. Burnett has investigated the effect of pure salt solutions in the production of a febrile condition. Instructor Rosalind Wulzen has studied the effect of material of the anterior lobe, pars intermedia and posterior lobe of the pituitary on growth and reproduction. Assistant Wallace B. Beebe has investigated the calcium content of the blood after parathyroidectomy. From her work on the function of the corpus striatum Assistant Lillian Moore has been led into a reinvestigation of the question of the occurrence of specific neurotoxins. Miss Ethel Jean Kelly has investigated the effect of extracts of the anterior lobe on the rate of division in paramoecium. Mr. Charles A. James has studied the rate of growth of the incisor teeth of the mouse and the possible effect of guanidin compounds on growth and calcification of the teeth.

Attention must be called to the extremely crowded condition under which the work of the Department has been done. It has been necessary to use a store room, and the photographic dark room as research laboratories. The lecture room also has been too small to accommodate classes and the lectures have had to be given in other buildings where important demonstration experiments were impossible. The space for students' laboratories is still less adequate. The work of the Department is also greatly hampered by the lack of convenient and hygienic quarters for experimental animals.

The Department is responsible for the instruction both of medical and non-medical students. Physiology is required in the second semester of the first year of the medical curriculum. It is also required in the course in Public Health and in four divisions of Agriculture; and it is recommended as an essential in the De-

partments of Hygiene and Physical Education. The training of teachers for work in the secondary schools is another important function of the Department.

The distribution of student enrollments during the year has been as follows:

Medical	91
Non-medical	276
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Total	367

Research students among the above have been:

Medical	5
Non-medical	28
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Total	33

The above have been distributed between Physiology and Physiological Chemistry thus:

Physiology	263, including 11 in research
Physiological Chemistry	104, including 12 in research

By action of the Regents, Physiological Chemistry and Pharmacology have been split off from Physiology and erected into an independent department under the direction of Professor T. Brailsford Robertson.

Respectfully submitted,

SAMUEL S. MAXWELL,

Associate Professor of Physiology.

DEPARTMENT OF PATHOLOGY AND BACTERIOLOGY

MEDICAL INSTRUCTION

The combined or correlated courses given in the second year of medical instruction in the general field of Pathology, which includes, according to what we believe a more correct interpretation, not only Morbid Anatomy by which Pathology has usually and incorrectly been designated in this country, but also Bacteriology and, so far as possible, the progress of disease in the body as evidenced by work in experimental Pathology and Infection and Immunity, have finally been embodied in an outline of 200 pages published in the University Syllabus Series. We believe this outline comprises the most complete scheme for the study of the natural history of disease that has been devised and utilized anywhere. It has been possible to employ this method here largely through the wise decision on the part of those responsible for the fundamental medical sciences that the concentration system of study should be employed. As evidence of the fact that our method of instruction in Pathology is acceptable, may be noted not only the local belief by the instructors in charge and the students, but also the fact that similar courses, modeled after our system, have been adopted by several of the medical schools of this country, particularly Yale University, Fordham, and the University of Virginia.

The number of students registered for instruction in the medical work in our Department remains about the same as during the past few years. The amount of instruction in the pathological science group is somewhat greater here than is required by the Association of American Medical Colleges, the excess occurring largely in the etiological and functional aspects of disease.

The instruction in Morbid Anatomy and Histopathology given in the second year, and in the autopsy course in the third year, has been equal to that required by the Association. We regard this relatively less emphasis on the terminal aspects of disease as consistent with present day scientific progress. The clinician doubtless would prefer to see Morbid Anatomy a point

of greater emphasis owing largely to the fact that his own training has been, of necessity, in the past in that line. The value of autopsy experience as ancillary to clinical medicine can, of course, not be over-emphasized. It is gratifying to find that the autopsy service at the University Hospital, which is the best possible instruction in this aspect of pathology that can be given, is gradually increasing. The autopsies last year totaled 143 as against 93 in the year 1914. These autopsies represent 75 per cent of the deaths in the Hospital, a very satisfactory percentage, which indicates interest and coöperation on the part of the clinical staff.

The first instruction in autopsy work, given in the second year course under great difficulties owing to the remoteness of the Alameda County Infirmary where the work is done, is, however, as satisfactory as could be expected under the circumstances, and students are there instructed, under the personal supervision of Drs. Rusk and Rehfish, in the essential principles of autopsy work and the correlation of disease processes.

Dr. Cook informs us that during the past year an autopsy session catalogue has been made of all the autopsy material that has accrued from the 350 autopsies during his services. A catalogue of this sort is already most valuable from a statistical and reference standpoint, and will increase in value with the years.

GRADUATE STUDENTS AND VOLUNTEER WORKERS

During the past year there have been enrolled for work in the research courses of the Department, eight graduate students, two of whom were candidates for Ph.D., and the remainder for the degree of M.S. In addition to these, there have been six volunteer workers not definitely enrolled in University courses, who have done research work in the Department. The activities of these workers will be covered more fully at a later place.

UNDERGRADUATE INSTRUCTION

The undergraduate course in Bacteriology required of all students in Agriculture and elected by many other students in other Colleges in Berkeley, has now increased to a registration of

211. Professor Hall has begun the preparation of a manual for laboratory use adapted to the needs of the several groups of students enrolled. The need of further differentiation in the course as given to the different groups of students has become manifest, and Professor Hall suggests that the future development of the course, or courses, will lie in outlining first a set of general fundamental exercises to be undertaken by all students; and second, various special problems which the students will be expected to select for individual study in accordance with whether his interest lies primarily in bacteriology of soils, foods, specific industries, or the diseases of man, animals, or plants.

It has seemed best from our own standpoint, and particularly for students who elect Bacteriology for the purpose of fulfilling requirements of other curricula, for example, the Public Health curriculum, that the Summer Session course in Bacteriology, which has been given for several years in this Department, should be increased in the number of units so as to be equivalent in credit to Bacteriology 1 given during the spring semester. Such an arrangement has been made and will be operative for the first time this summer.

PERSONNEL

It was suggested in last year's report that it was then desirable and would soon become imperative, to have two ranking instructors in Bacteriology, one responsible for Medical Bacteriology and the other responsible for undergraduate Bacteriology. The increasing number of students and needs of undergraduate instruction that have been mentioned, would make it highly desirable for courses in undergraduate Bacteriology to be given throughout the entire year, which, of course, would take the entire time of a professor and his assistants. Such a scheme is, of course, not possible on account of space so long as the medical instruction in Bacteriology is given in Berkeley, but with its removal to San Francisco it will then not only be possible, but the appointment of another ranking man will be absolutely necessary. The present staff for bacteriological instruction, then, must be regarded as only temporary. There have been no changes

in the more strictly teaching members of the staff since the last report. Several additions in research members of the staff will be mentioned in another place.

The present technical assistance in the Berkeley laboratory may be regarded as adequate, although each member is distinctly working to the limit of his or her powers. The two technical assistants provided for the pathology laboratory in connection with the University Hospital have now been made directly responsible, from the standpoint of salary and supervision, to the Department of Pathology, instead of the University Hospital. The former arrangement was highly unsatisfactory owing to the fact that the Superintendent of the Hospital properly regarded these technicians as subject only to himself, whereas their activities were entirely for the purpose of the work in Pathology which alone should control them.

Two internes, or an interne and a resident, were requested in connection with the San Francisco laboratory. It was not deemed possible to allow a salary for even one of these positions for the next year, although a position has been created on a basis similar to the interne of other services in the Hospital. Inasmuch as even a temporary career in Pathology seems not to appeal to recent graduates it will probably be impossible to fill this position, owing to the fact that no salary has been provided. We regard it as absolutely necessary for a resident, with salary, to be appointed as soon as possible, in order that the routine work of the Hospital may be adequately cared for.

EXPENSE AND EQUIPMENT

The amount requested and allotted for expenses and equipment remains the same for the ensuing year. A small appropriation of \$350 has been allotted in the budget for the use of Dr. Cooke in connection with the University Hospital work, whereas such expenses have previously been obtained only through the favor of the Hospital Superintendent. The Hospital budget will continue to supply a part of the expense as the Pathology laboratory is, of course, one of the service stations of the Hospital and may expect to receive a sufficient return for material employed

in this service. It would probably eventually be better to have the entire amount necessary to run this laboratory supplied through the Department budget and the service given without direct expense to the Hospital budget.

In the Berkeley laboratory a basement has been fitted out for the accommodation of two investigators who have volunteered their services, and the space thus provided will afford accommodations for one or two additional workers as they appear.

The animal house on the roof of the Pathology Building has been improved so that it may now be regarded as one of the best laboratories of the kind and quite adequate for our present needs. The present excellent condition of the animal house is attributable to the supervision of Professor Hall and to the possibility of employing a young man for his entire time in caring for the animals, a need which has long been felt and only this year gratified. This provision for animals under experimentation does not, however, render less desirable the establishment of a breeding plant, either at the University Farm or on the campus to provide a constant supply of normal animals not only for this Department but for other departments of the University needing them. It is hoped that such a place will soon be provided, not only from the standpoint of greater efficiency in supplying sufficient absolutely healthy material, but also from the standpoint of economy.

It may suffice to mention here that one of the great needs of the Medical School as well as of this Department, is the provision for a suitable building to house us, as well as the Department of Anatomy, in connection with the University Hospital in San Francisco.

RESEARCH

Research work in the Department has greatly increased during the past year, owing first of all to generous provisions which have been made for the continuance of certain problems. The work on typhoid has been continued, particularly in the aspect of cure of the disease. Two research fellowships have been available in connection with this work; first a fellowship of \$1200

donated by friends of the late Dr. Edith Claypole, and second a donation from Mr. J. K. Moffitt in place of the amount that had been given by the University as salary to Dr. Claypole herself. In addition to these two funds, the Rockefeller Institute for Medical Research has given us a grant of \$500 for expenses and technical assistance. This work, then, has been carried out without any expense to the University directly.

The aspects of the typhoid fever problem that have been investigated can only be summarized here. Encouraging progress has been made on the cure of typhoid fever through the work of Gay and Chickering, the services of Dr. Chickering being obtained from the Rockefeller Hospital for six months on the Moffitt grant. Dr. S. B. Hooker, appointed to the Claypole Research Fellowship, has made a most important contribution in studying the various strains of the typhoid bacilli which he believes can be divided into very definite groups. The nature and occurrence of tropins in typhoid immune sera and in typhoid patients, has been investigated by Miss Inez Smith, who has elaborated a very good technic for the purpose and obtained suggestive results in the different groups of cases of typhoid studied by Gay and Chickering.

Dr. Foster of the Cutter Laboratory, and Dr. Harry East Miller of Oakland, have volunteered their services in the study of certain aspects of ferment reactions in the sera of animals immunized against *B. typhosus*. Their results, for purely technical reasons, have not progressed far enough to give any definite conclusions. The accuracy and applicability of the typhoidin reaction has been investigated during the year by Dr. Force of the Hygiene Department, and Miss Ida May Stevens, who has been working as a graduate student in this Department as well as in Hygiene. Another contribution to the subject has been made by Dr. Kilgore of the Medical School. Mr. Righetti has investigated the globulin content by the Robertson method, of typhoid immune animals. Miss Lore Weber has begun the investigation of the fate of the typhoid bacilli injected into the circulation in the liver and gall bladder in connection with certain vital stains.

Other problems investigated in the Department, some of which have reached conclusion, are as follows: Miss S. E. Ward has worked on the Streptothrices. Dr. M. Takeoka of San Francisco has obtained very suggestive results in the application of certain aspects of chemotherapy in the treatment of tuberculosis in animals. Professor Gay and Miss Ruth Stone have studied the fate of antibodies in the precipitin reaction. Dr. Cooke has studied Intestinal Obstruction, in collaboration with Dr. Whipple. An elaborate study on the subject of compound proteins and their antigenic properties has been carried out by Mr. Carl A. Schmidt, the work being made possible by a grant of \$2000 from the Hooper Foundation for salary and materials. The work is so important in its results that it is hoped it can be continued. Dr. Rusk has made morphological and chemical studies of a number of tumors, and Dr. Rehfish is making a study of the structure of red blood cells by means of vital stains. Dr. Meyer, since leaving the Department, has published several articles representing work carried out in the Department. Mr. Hall, since coming to the Department, has published four articles on work done in the Cutter Laboratory on infections of animals. He is now engaged in the study of certain fundamental aspects of anaerobiosis and the metabolic activities of certain bacteria.

There have been nineteen papers published from the Department this year, and there are seven more in press at the present time.

In addition to a number of lectures and reports before outside scientific societies by various members of the staff, Dr. Gay has given two addresses, the Faculty Research Lecture and the Presidential address of the Sigma Xi Society.

Respectfully submitted,

FREDERICK P. GAY,

Professor of Pathology.

DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

Much time of necessity has been spent in effecting an organization for the coming year and in developing plans to meet many of the difficulties which have resulted from the great increase in the number of students assigned to the wards and dispensaries for clinical instruction during the past session. A satisfactory solution of the latter problem is not possible with the present dispensary building. Fortunately there has been a very large increase in the number of patients applying to the University Hospital for treatment, each division (Obstetrics and Gynecology) increasing nearly 35 per cent. With the opening of a new ward in the San Francisco Hospital the department comes into control of seven new gynecological beds. The students continue to enjoy rather exceptional clinical opportunities. Each one attends a minimum of twelve confinements under proper supervision, while those especially interested in Obstetrics, see twenty-five to thirty-five. Each member of the fourth year class has served for three weeks or more as a clinical assistant in the dispensary of the woman's clinic, which had nearly 4200 cases during the year.

Class room exercises have been carried on along the teaching plan laid down two years ago. Every effort possible is being made to develop the operative gynecological service so that the clinic may have no difficulty in filling from the outset the larger wards in the new hospital. A cystoscopic clinic for ambulatory cases has been opened and successfully maintained. The follow-up system adopted by the hospital is proving of greatest value in determining the relative values of many operative procedures, as well as the frequency of many sequelae of pregnancy and labor.

Our hospital service has been greatly handicapped by an insufficient number of interns, necessitating frequent substitutions and changes. Under ordinary circumstances this would have precluded absolutely any investigative work, yet the cheerful coöperation of members of the staff of the Hooper Institute has made possible the accumulation of much data which could not have been obtained otherwise, and which will prove of the

greatest aid in the study of various problems of the toxemias of pregnancy in which we have the greatest interest. The close association of the Institute has proven of the very greatest value.

Various papers by members of the staff have been published or are in press. An investigation of the carbon dioxide content of the blood plasma during pregnancy is being carried on by our resident, Dr. Emge. Dr. Neel has published a new method for suspension of the displaced uterus, and has described a new technic in perineal repairs. Articles by Dr. Lynch on "Treatment of Pernicious Vomiting of Pregnancy Based upon a Study of the Metabolism," and "The Operative Treatment of Prolapse Based upon a Study of Anatomical Sections," and "The Bacteriology in the Urine of Eclamptics," written with George F. Dick, are now in press.

There are several imperative needs which must be met before the Department can be upon a satisfactory basis. These are:

1. A working library of the literature from 1905.
2. A properly organized departmental laboratory.

Respectfully submitted,

FRANK W. LYNCH,

Professor of Obstetrics and Gynecology

DEPARTMENT OF PEDIATRICS

Conditions in the Hospital have remained approximately the same as during the year 1914-1915. A slightly better arrangement has been made in the division of the wards. A new ward with a capacity of six beds, has been assigned to sick infants, leaving the larger ward for older children. During the year we have had one and occasionally two wet-nurses on duty for our very sick infants and for the rapidly increasing number of premature infants sent into the Hospital. We are also extending this service to the public by furnishing wet-nurses who have been carefully examined and trained.

Thanks to the coöperation of Dr. Lynch and the Women's Department we have continued in charge of the Nursery. The value of this from a teaching standpoint is very great as the students have actual experience with the problems of the newborn and the early nursing. This departure is being followed by other medical schools, namely Rush and Stanford, and we feel that it will be followed by all hospitals in time.

Our agreement with the Children's Hospital has increased the facilities for ward section teaching very materially. From September to December, 1915, Dr. Ash did the active teaching on the service and small sections of three or four students spent the afternoons there in bedside work. Dr. Appleton continued the work this past semester on the service of Dr. W. B. Lewitt, who did not wish to do any active teaching. With a further extension of the terms of the agreement between the Medical School and the Children's Hospital, I hope to institute the resident system on the children's medical service. This will add to the efficiency of our teaching there and more than any other factor will make it possible to do consecutive and uniform work.

Small sections of students were also assigned to the San Francisco Hospital for bedside work during our ten weeks of service there; the teaching I carried on with the assistance of Dr. Appleton.

These added clinical opportunities increased the number of fourth year students electing pediatric work to twenty-one.

During this past year I have continued my study of the newborn and, with the assistance of Dr. Appleton, hope to present a monograph on these problems in the near future.

Dr. Rachael L. Ash and Dr. Kate Brousseau (Professor of Psychology at Mills College) have been carrying on a very extensive state and country-wide investigation of mongolism. It would appear that mongolian imbeciles are found more frequently in this community than in other parts of the country, and it was to determine this fact and to make an extensive monographic study that this investigation was undertaken by Dr. Ash and Dr. Brousseau.

In the Out-Patient Department we are making several very important studies. One of my internes has assisted me this year in studying congenital syphilis. With Dr. Hans Lisser of the Medical Clinic, who is in charge of the specific treatment of these cases, we are making a complete familial study. Miss Emma Hawkridge, a trained social service worker and a voluntary assistant in the Medical Clinic, has already made a preliminary study of forty families covering some 123 cases.

We have undertaken an extensive survey of tuberculosis, both in the Hospital and in the Out-Patient Department. During the past three years, of 5127 children registered in our Children's Clinic, 1416 were carefully examined for tuberculosis. We expect to continue this work more intensively during the coming year and have started a special clinic for tuberculin treatment.

A survey of the results of tonsillectomy in the Out-Patient Department during the last three years was made by Dr. Linton Gerdine (assistant resident) in conjunction with the Throat Department. His article on the results of this investigation will be published in the California State Journal of Medicine.

Our study of adolescent cases still continues. The majority of the patients are wards of the Juvenile Court where Dr. Ethel M. Watters (senior resident) and Dr. Linton Gerdine (assistant resident) make careful physical examinations.

The growth of the Out-Patient Department during the past year has been most satisfactory. During March our total visits were 1165, the highest number we have yet reached. The total number of visits for the year (May 1, 1915, to April 30, 1916) was 9438, an increase of 18.5 per cent over the same period of the previous year.

Several important changes have been made in the management of the Children's Clinic. We hope to have the addition of two adjoining rooms which will facilitate the teaching, relieve the congestion and give better opportunity for demonstrating important cases to small sections of students.

The Infant Welfare Clinic has grown so markedly during the past year, that in July we contemplate the establishment of a clinic—three afternoons a week—for the direction of the feeding

of normal babies. Only our ambulatory sick cases will then come to the morning clinic. The efficiency and growth of this clinic has been due in part to the valuable work of Miss Hannah Leszynsky, a volunteer social service worker, who on April 15 resigned to take charge of the Social Service Department of the Stanford Clinics. It has also been greatly facilitated by the addition of the infant welfare nurse, Miss Kate M. Davis. The salary of this nurse is paid by members of the Women's Auxiliary Board.

The Auxiliary Board has been most generous in supporting our social service work, not only in the Children's but in all the other departments. They have established a certified milk fund for the purpose of supplying this food to sick babies and nursing mothers. The Board was likewise responsible for a most successful Christmas celebration for the children in the Hospital as well as the needy ones of the Out-Patient Department.

The Social Service work under the direction of Dr. Louise Morrow has continued to expand. Dr. Morrow in her capacity of assistant in the Social Economic Department gave Economics 258c the first semester of this year (August to December, 1915) and assisted with the field work of Economics 118. During the second semester she assisted with the field work in Economics 119 and 151. Dr. Morrow has had nine students working on special problems as follows:

Special Study of Syphilitics—Bess Babcock (graduate student).

A Study of Occupational Diseases—Gladys Hardy (graduate student) assisted by Donna Moses, Mollie Putnam, Mary Hutchinson, and Gretchen Jensen (undergraduate).

An Efficiency Test of the Clinic and of the Financial Condition of the Patients—Winifred Pearce (graduate student), assisted by Emily Huntington and Ruth Turner (undergraduates).

A Survey of the Orphanages of San Francisco—Winifred Pearce.

The two principal studies of the year have been: "The Relation of Occupation and Disease," and "A Study of the Out-

Patient Department of the University of California Hospital based on Medical and Social Records." Dr. Morrow has been assisted with the routine work of the Social Service Department by Rosalind Magnes, Marguerite Spires, Winifred Pearce, and Rose Wolf, graduates of the University. A program for social service teaching in the University has been worked out by Professor Peixotto, Dr. Morrow and myself. These courses we hope will attract students who are seriously considering social service work as a vocation. Dr. Morrow is planning to make an extensive survey of the Eastern institutions which do social service work and later is to give a short course in the Summer School.

Our connection with the Juvenile Court psychological work has continued in charge of Dr. Olga Bridgman. This is undoubtedly one of the most important developments of the Department. Dr. Bridgman has made a definite connection with the Department of Psychology of the University by giving the following courses: Philosophy 142, Abnormal Psychology of Childhood during the current year, and two courses in the Summer School of 1916—Philosophy 108, Abnormal Psychology of Childhood and Philosophy 209, Methods of Testing Abnormal Children. She has had four students actively assisting in clinical work as follows:

Comparative Study of Children in an Orphanage and in Their Own Homes—Frederick Nass.

Statistical Studies from Cases in the Psychological Clinic—Jessie Preble.

Study of Criminals in the Superior Court of San Francisco—Kenyon Scudder.

Study of Intelligence of Homeless Men in the Oakland Wood yard—George Hodgkin.

Dr. Bridgman has made 750 psychological examinations of the wards of the Juvenile Court. This data, together with the record of the physical examinations of these children, when presented to the presiding judge, gives valuable assistance for the formation of his opinion. I hope that this particular piece of work will be the forerunner of a much wider contact with the problems of

the court to be investigated by our future department of psychiatry. The public is already taking a keen and intelligent interest in these problems and we feel that in having started the Juvenile Court work along such sound lines we have made the Children's Department serve the State in a very positive manner. With the coöperation of the Board of Education we have continued our psychologic studies in the various schools selected by the Board as presenting definite problems. Much of this work has been done by Miss Ethel Valentine, a voluntary assistant in the department.

During the past year we have organized a department for the correction of speech defects. The Board of Education has appreciated this work, allowing us the use of rooms in the Mission Grammar School for the clinics which meet on Tuesday and Thursday afternoons. There has been an attendance of from sixty to seventy children, showing the need of this type of work. Mrs. Mabel Farrington Gifford, who is in charge of these classes, has had exceptional training and is to give a course in Summer School. She has been appointed as an assistant in the Department for the coming year and will further develop this phase of children's work.

The medical supervision given by the Department to the San Francisco Nursery for Homeless Children has continued; there have been no serious epidemics. I still feel that the extension of this supervisory work is of value to the public for the solution of institutional health problems should be one of the functions of the Medical School.

Respectfully submitted,

WILLIAM PALMER LUCAS,

Professor of Pediatrics.

DEPARTMENT OF SURGERY

The Department of Surgery has in common with other departments of the Medical School been pressed for room to accommodate the steadily increasing number of patients—a condition which will be remedied for a time at least by the opening of the

new hospital. The out-patient clinics of the Surgical Department, including those of Surgery, Orthopedics, Urology, Ophthalmology, Laryngology, Otology, and Rhinology, have all shown a rapid growth, and the ultimate necessity for an out-patient building is apparent to any who have followed the statistics of the clinics. There is at present no opportunity to develop a sub-department of Mechanotherapy, which has been found to be of great value in the treatment of joint deformities following injuries, muscular atrophies and certain other conditions in which the period of disability is usually long. A start in this direction has been made in securing the services of a trained masseur, but it is to be hoped that as soon as space is available an equipment of special mechanical apparatus will be forthcoming. The saving to the community by shortening the period of disability following a fracture, for instance, can be fairly accurately figured in dollars and cents, and it is a part of our work to restore the individual to working capacity as quickly as possible.

The establishment of a follow-up system, whereby communication with patients is secured at varying periods following their discharge from the hospital, has been of great interest and we shall in another year give a summary of results.

Respectfully submitted,

WALLACE I. TERRY,
Professor of Surgery.

DEPARTMENT OF MEDICINE

Since the transfer of the last half of the second year instruction to San Francisco the Department of Medicine has been concerned chiefly in the organization of suitable introductory courses to prepare the student for work in the various clinical departments. The number of teaching hours required has seriously interfered with the productive work of the Department. Much effort has been spent upon the elaboration of a system of history taking and hospital records which has now been adopted

by all service in the University Hospital and Out-Patient. A number of papers descriptive of history taking, filing of records and nomenclature of disease have been published in the past year by Dr. Kilgore and Dr. Whitney. The system of records has been extended to the San Francisco Hospital so that a uniform standard of work maintains in all departments of the Medical School.

Under the direction of Dr. W. W. Kerr, teaching in the wards of the new San Francisco Hospital has proved a valuable asset to the Department. The assignments of more interns and of a full-time resident has made the service in the San Francisco Hospital much more effective, and it is hoped that a more liberal budget may later become available for development of its clinical laboratories.

The Medical Out-Patient Clinic has grown to the limits of the present cramped and wholly insufficient quarters, and every effort should be made to provide a new building with suitable rooms for patients and for teaching.

If possible more part-time positions with small salaries should be provided the Department in order that younger members of the staff might have more time for clinical work in the Hospital and for research. A full-time clinical pathologist is most essential to the future development of chemical work in the Department. With the opening of the new hospital, with the increased teaching staff in University Hospital, Medical School, Out-Patient and San Francisco Hospital, with the more intricate relations to other clinical departments of the School and to Medicine in the community it becomes evident that the activities of the Department of Medicine cannot much longer be directed adequately by a man devoting but part time to the University.

Respectfully submitted,

HERBERT C. MOFFITT,

Professor of Medicine and Dean of the Medical School.

LOS ANGELES MEDICAL DEPARTMENT

LOS ANGELES, July 1, 1916.*To the President of the University,*

SIR: I have the honor to present the following report on the Los Angeles Medical Department of the State University for the year 1915-16:

The year just closed has seen continued progress in the work of instruction to graduates of medicine, not only in the better equipment of the buildings, and in arrangements for increased and more efficient work by the clinicians, but also because of the better facilities for instruction.

A total of twenty-nine licensed practitioners of the healing art have been matriculated during this year, and it is gratifying to know that practically without exception, every one of these doctors expressed at the close of his course his appreciation of the efforts which were made to enable him to increase his own capacity for good work.

There are a goodly number of problems still to be solved, but none present unsurmountable difficulties.

The graduates who have entered the institution during the last year represent a total of sixteen different states, and it is our belief that the matriculation will show a steady increase, as the work of the department becomes better known.

Respectfully submitted,

GEORGE H. KRESS,

Dean.

CALIFORNIA COLLEGE OF PHARMACY

SAN FRANCISCO, July 1, 1916.*To the President of the University,*

SIR: I have the honor to submit for your consideration the report of the College of Pharmacy for the collegiate year of 1916. In my last report the tabulated educational record showed that sixty-two per cent of the matriculants had received four years' high school training. I take this opportunity to extend that statement by stating that the subsequent enrollment shows a percentage of seventy-five per cent of high school graduates among our matriculants. Again, in continuation of the total enrollment, I can state that there were ninety-eight matriculants for 1915-16. This increase in the percentage of those enrolled having had four years high school training is cheering when the advisability of raising the entrance requirement of this college in the near future is considered.

There has been no change in the personnel of the faculty during the past year. However, there have been resignations on the part of two members of our Board of Directors, Mr. John H. Dawson and Mr. James G. Munson. These members, like those remaining, have served the college as educational and financial advisors for many years. It should be borne in mind that they have served without compensation other than the fulfillment of sentiment and duty to pharmaceutical education.

As you are aware, the College of Pharmacy has hitherto offered two courses, one demanding two high school years and consisting of two years collegiate study, leading to the degree of Graduate in Pharmacy, and the second requiring four years of high school preparation and one year additional to the Ph.G.

degree, leading to Pharmaceutical Chemist. This year we announce a third course, namely of one year extension of pharmaceutical study beyond that of Pharmaceutical Chemist, also calling for four years high school work and leading to the degree of Bachelor of Pharmacy. This course appears in our 1916-17 announcement.

All courses in this college are planned to be of service to the pharmacist, not only for the purpose of promoting efficiency and capability on his part, but also to keep him clearly within the province of his occupation, the faculty of this school at all time strictly guarding itself against entering fields already covered by the parent university.

Respectfully submitted,

FRANK T. GREEN,

Dean.

UNIVERSITY OF CALIFORNIA PRESS

BERKELEY, July 1, 1916.

To the President of the University,

SIR: I respectfully submit herewith the following report upon the work of the University of California Press for the year 1915-16.

As noted in the report for the year 1914-15, the University of California Press, as a medium of publication for the members of the University, has been passing through a critical stage on account of the inability of the University's printing facilities to keep pace, not only with the printing requirements of the Press but with the rapidly growing bulk of the University's printing in general. Much needed relief of the situation was afforded by the erection during the year just passed of a new building for the University Printing Office, in which room has also been found for an office for the Press, with a mailing room. The full advantage of the relocation of the Printing Office will not be realized until the additional space provided has been utilized for new items of equipment under consideration for the coming year—in particular a quantity of space-saving steel galley-racks with imposing stones, a third linotype, and a much needed new press to replace an outworn one.

So far as the work of the Press is concerned, these improvements in the University Printing Office offer more of promise for the future than actual achievement during the past year. The work turned out by the Printing Office in the *University of California Publications* amounted to 73 papers, making 2510 pages with 131 plates—about 400 pages and plates more than the very small output of 1914-15. By arrangement with a San Francisco

printing house, 11 papers, making 1068 pages with 42 plates were printed for us. The total addition to the volumes of *University of California Publications* was 84 papers, in sixteen of the University's series, comprising 3578 pages and 173 plates, an increase over the preceding year of 21 papers, 1450 pages and plates. To this should be added 10 issues of the *Lick Observatory Bulletin*, 59 pages and one plate.

The year 1915-16 began with 49 papers on the University Press calendar carried over from the year before. The completion of 40 of these,* in 2746 pages and 152 plates, makes 7 per cent of the output ascribed to 1915-16. Of contributions both submitted and issued during the year there were 44, amounting to 832 pages with 21 plates, each paper averaging about twenty pages. The year ends with 44 papers on the calendar, of which 11 are in progress with the printer, while the others still await attention at July 1. These papers, however, in the bulk of material to be printed, will amount to more than the total amount printed for the *Publications* in 1915-16 by the University Printing Office, so that the prospective additions to printing equipment will be urgently needed to clear our calendar and keep ahead with prospective work.

The quantity of material published, stated in totals of pages and plates with their cost, is a convenient measure of the activities of the Press, for comparison with other years. It is not the proper test, however, of the function of a University Press. The University of California would not be justified in maintaining the Press as a department of the University if it were not satisfied that in doing so it serves the ends of scholarship. That the purposes which the University cherishes are served through its publications cannot be doubted. The rapid growth of the publishing activities of institutions such as Chicago, Harvard, Princeton and Yale, each with its University Press, demonstrates that there is a need for agencies of publication maintained by universities of high standing, supplementing the functions of commercial publishers in the direction of serving more particularly the

* Five of the remaining nine are still in the printer's hands, and four have been withdrawn.

needs of scholars. And the University of California seeks through its University Press to meet the needs of its scholars, although in a way entirely different from that adopted by the other institutions mentioned. We do not as yet undertake the general publication of books, and we serve only our own University community. But within these limitations the publications of the University have rendered substantial service.

The University of California was among the first to recognize its obligations to promote scholarship by fostering with its own means opportunities of publication. It began in 1893 the publication of the *Bulletin of the Department of Geology*. At first slowly and since 1902 more rapidly, it has developed a system now including twenty-five series of publications devoted to the results of research. This plan, of publishing contributions from members of the University community in departmental series, in papers ranging from brief communications of three or four pages to monographs of three or four hundred, if it did not originate here, has been more highly developed at California than at any other institution known to the writer, and has always been generously supported by grants of funds, increasing as the need has increased. The result of this policy has been, not only the accumulation of a most creditable collection of scholarly contributions in the completed volumes of our series, in widely diversified fields of investigation, but also a distinct stimulus to such investigation.

The effect of opportunity for publication as encouragement to the work of scholars is shown in the steadily increasing number of important contributions offered for publication by members of the faculty; it is shown even more significantly in the appearance in our publications of papers by advanced students, prepared in laboratory or seminar in the course of studies leading to the higher degrees—papers submitted by the Editorial Committee to the same tests as papers offered by members of the faculty, contributions not so broad in scope, perhaps, but sound and worthy. It is important to note here that during the past eight years over one hundred contributions from about eighty advanced students have been published, in the series of thirteen depart-

ments, and that of the publications issued during the year covered by this report, twenty-nine, in four series, were by nineteen advanced students. The results show that such opportunities for publication have unquestionably very great value to the University's graduate instruction.

Other avenues of publication are of course open, both to faculty members and to students, in the innumerable journals, representing every branch of learning. Contributions appropriate to these journals naturally find their way to them—the *University of California Publications* contain just 25 per cent of the number of scientific and technical writings as recorded in the President's Reports from 1913 to 1915. But that 25 per cent undoubtedly found in the facilities afforded by the University an opportunity for publication more advantageous or more available than opportunities elsewhere. And if one-fourth of the University's researches seek an outlet to the world of scholars through the University publications, the University must maintain its own facilities to publish them.

The University of California Press is the name given to that department of the University which is charged with the direction of the University's publications. Its particular care and the chief charge against its budget are the series known as the *University of California Publications*. It also publishes the *University of California Chronicle*, and the *Syllabus Series* of outlines, laboratory directions and the like, for use in University classes. Nominally under its direction and issued under its imprint are also the *Bulletin* and *Publications* of the Lick Observatory, the *Bulletin* and *Circular* of the Agricultural Experiment Station, and the *Administrative Bulletins*, all published, however, from other funds. The University of California Press is therefore not in the general publishing business. Except for a very few instances it has not issued books. It is not, in fact, a "Press" in the meaning which the activities of other institutions have given to the term "University Press." Through it the University of California has served only its own purposes; it has not as yet been put at the service of scholars outside of the membership of this University.

For some fifteen years the University of California Press has developed within the limitations noted. Its work has been demonstrated to be a necessary and important function of the University. It will still remain necessary and important even if it continues within its old limitations. But the question will surely soon be raised whether this is sufficient; whether the University of California shall not, if and as it is able, extend the privilege of publication through its University Press to the work of others than its own members—work to which the University may properly give its approval through the use of its imprint. The number of books published would at first, and perhaps for several years be very small. But a University of California Press continuing to grow upon this broader basis will testify, as no publishing department limited to the publication of the University's own work can adequately testify, to the care of the University for the search for Truth and for its dissemination.

The approaching fiftieth anniversary of the University will be the occasion for the appearance of a series of volumes, the work of members of the faculty, under the general title *Semi-centennial Publications of the University of California*. These will be published in part by the University of California Press and in part by other publishers. Thirty-nine titles have thus far been provisionally approved by the Editorial Committee. About half of these will be published by the University. Of those works published elsewhere the University will purchase 250 copies each, to be bound uniformly with the volumes to be issued here, these sets to be distributed at the time of the semi-centennial celebration. Additions will undoubtedly be made to the present list, which even as it stands is quite representative.

The situation of the University with regard to issuing and distributing the University publications is, for the time being at least, very unsatisfactory. Building operations on the University Library necessitated the removal of the stock of publications in May to temporary storage in the Sather Tower, where it is almost inaccessible. The space in the new Press building which was to be occupied as a mailing-room has been used for storage for material belonging to the Printing Office. This has not only

compelled the use of the office of the University Press in part for storage, but has made it impossible to do the required mailing and shipping except under the most disadvantageous conditions. And the disposition of the reserve stock of new publications as they come from the printer is already a very troublesome problem. Temporary relief has been promised, but for lasting relief of this condition storage space must soon be found at least equivalent to that formerly occupied in the Library basement. It is hoped that this can be provided for somewhere in the new construction now in progress on the campus.

The distribution of the University publications remains essentially unchanged. The continuance of the European war has practically put a stop to exchange relations with Belgium, Germany and Austria, Russia, the Balkan states, and portions of France. Exchange distribution elsewhere, however, continues to grow, with the gradual addition of new exchanges arranged through the University Library. The accompanying statement shows a slight decrease in the receipts from sales of publications. As noted before in these reports, a policy of generous distribution of publications in exchange and otherwise is incompatible with a policy of developing sales. At present, however, the purpose of our publications are best met by a fairly wide distribution rather than by any increase in subscriptions at the cost of the distribution. Some three hundred dollars has been spent on advertising during the year, resulting in a fairly steady inquiry sufficient to justify careful attention to the proper placing and "following up" of advertising in the coming year.

A table follows showing in brief form the amount of material published, and the expenditures made.

Respectfully submitted,

ALBERT H. ALLEN,

Manager of the University Press.

Series	Papers	Pages	Plates	Expenditures*
Agricultural Sciences	1	50	....	\$129.78
American Archaeology and Ethnology	6	308	....	891.39
Botany	7	222	12	667.00
Classical Philology	6	182	....	431.25
Economics	1	32	....	93.75
Engineering	2	48	....	210.52
Entomology	4	102	....	304.50
Geography	2	110	19	355.99
Geology	19	730	75	2,707.64
History	2	594	13	1,212.45
Modern Philology	1	82	....	200.25
Pathology	1	10	....	37.99
Physiology	2	8	....	40.00
Psychology	7	318	....	891.98
Bulletin of Seismographic Stations....	2	44	....	162.66
Zoology	21	738	54	2,713.58
	84	3,578	173	\$11,050.73
Lick Observatory Bulletins	10	59	1)	
University of California Chronicle				1,053.20
Syllabus Series				877.31
Total expended on publications				\$12,981.24
Office expenses, assistance, postage, supplies, etc.				4,459.37
				\$17,440.61
Balance of budget for 1915-16 unexpended				8,773.42
				\$26,214.03

* "Expenditures" does not mean the cost of the particular papers enumerated here, but the money spent on the series named—in part on papers not yet published. Part of the cost of the papers published this year was paid out of funds of the year before.

RECEIPTS FROM SALES OF PUBLICATIONS, 1915-16

Agricultural Sciences	\$8.76	
American Archaeology and Ethnology	41.96	
Botany	61.50	
Classical Philology	8.47	
Economics	72.76	
Education	129.70	
Engineering	8.05	
Entomology	2.80	
Geography	10.65	
Geology	213.72	
History	238.49	
Mathematics	1.10	
Memoirs	448.02	
Modern Philology	15.79	
Pathology	4.23	
Philosophy	1.44	
Physiology	29.05	
Psychology	15.36	
Seismology	1.65	
Zoology	68.04	
	<hr/>	\$1,381.54
University of California Chronicle	87.89	
Syllabi	1,126.12	
Sundries	65.32	
	<hr/>	\$2,660.8
Graeco-Roman Archaeology		24.0
Lick Observatory Bulletin	\$2.00	
Lick Observatory Publications	81.45	
	<hr/>	83.4
Library Bulletin		13.5
Publications of the Academy of Pacific Coast History		14.7
Announcement of Courses*	\$321.66	
Circular of Information* .....	.10	
Directory of Graduates*	3.00	
Officers and Students*	280.11	
Register*	2.50	
Summer Session*	1.30	
	<hr/>	608.6
University Calendar	\$84.10	
Elementary Studies in English .....	.10	
English in Secondary Schools	1.81	
McCallum, on Cathartics .....	.75	
State Geological Survey Publications	14.50	
Weinstock Lectures	36.71	
Zoe	10.00	
	<hr/>	147.9

* Does not include sales through the Recorder's Office.

\$3,553.2

SCRIPPS INSTITUTION FOR BIOLOGICAL RESEARCH

LA JOLLA, CAL., July 1, 1916.

To the President of the University,

SIR: My report of the year July 1, 1915, to June 30, 1916, is herewith respectfully submitted.

MATERIAL DEVELOPMENT

The last year—like the preceding—has been especially notable for physical development in the life of the Scripps Institution.

Wharf.—The new 1000-foot reinforced concrete wharf was completed in February, 1916. The cost of the complete installation has been:

Original contracts—	
Wharf alone	\$26,184.00
Pump, etc.	2,443.50
Sedimentation tank	2,715.00
Sea wall	1,890.00
	\$33,232.50
Additions—	
For extra piling, required by excess depth of water and sand	\$2,856.00
Change of floor from partial to complete width....	1,120.00
Inspection and overhead	1,791.50
	5,767.50
	\$39,000.00

Although the installation has been in operation only a few months it has been tried sufficiently to give considerable indication as to its effectiveness and range of utility. The heavy wind which culminated on March 23 gave clues concerning the stability of the structure that are encouraging. The elements on which

we are relying for safety when the real test comes are the strength of the piles, the fact that the penetration of each pile into the solid shale which underlies the shifting sand and gravel is at least five feet, and the fact that the superstructure of the wharf is 23.3 feet above mean low tide, this being sufficient, it is believed, to prevent the seas from ever reaching the upper works. It is felt on all hands that one of the most vulnerable points in the whole structure is the steel casing near the end of the wharf in which the pump is placed. This, together with the pile close to which it stands and which is its main support, presents a rather formidable broadside to waves from the northwest.

Three main utilities were contemplated for the wharf: that of a landing place for boats, of an intake for the salt water system, and of a place for certain kinds of scientific observation and experimentation. The few months of its life have shown incontrovertibly its success in each of these particulars, but the incompleteness of the trials are leading us to see that it has even larger possibilities of usefulness than we had counted on. This is particularly true as to its direct service in scientific work. For example it is already being used for making plankton collections in ways that we had hardly contemplated.

The quality of water obtained, as tested both by the animals kept in the public aquarium and by the requirements of the research aquaria, has more than met our expectation. At times a good deal of iron rust comes in, gathered somewhere in the 1500 feet of iron piping between the sea pump and the pressure tank, but sufficient attention to the discharge gates on starting and stopping the pumps ought to overcome this. But while expressing gratification at the quality of the sea water which has been brought into the buildings so far, it will not do to forget that we have yet to see what happens during the long, heavy winter storms when the sea is most stirred up and carries the greatest amount of foreign matter.

The sea pump, a centrifugal driven by an electric motor of five horsepower, when working at its best delivers about 150 gallons per minute, which is considerably better than the guaranteed performance.

Barring difficulties that must be anticipated from the growth of organisms over the intakes and in the pipes, the new salt water system may be counted as effective as any that could be secured for the expenditure.

Library-Museum Building.—The contract for this, made with Messrs. Winter and Nicholson of San Diego, was signed on January 12, 1916, but owing to the January floods construction did not begin until March 1. The work was so nearly complete by the middle of June that the moving of the library and museum to their new quarters began at that time and was practically complete in time for the Assembly in Science which began on June 26. The building cost:

Building alone	\$17,928.00
Book stacks	2,014.00
Furniture	1,561.00
Window shades, etc.	136.00
Excavating and grading ..	2,000.00
Architect's fees	800.00
Inspection	400.00
	<hr/>
	\$24,839.00

New Cottages and the Commons.—Nine new cottages have been built during the year from the Ellen B. Scripps gift, and three others for Mr. E. W. Scripps from funds of his own. The total cost is \$20,000. Most of them are of considerably better quality than those built in 1912. These cottages increase the housing capacity of the colony by more than fifty persons. The living facilities have also been increased through the erection, at a cost of \$4000, of a "commons" with dining-room space for about forty. It is intended that this building shall serve for a social as well as for a dining hall. A half-basement story of the commons contains four bathrooms. This basement also contains a small laundry.

A corrugated iron garage with stalls for four automobiles has been built at Mr. Scripps' expense in the vicinity of the new cottages.

The portion of the grounds occupied by the new dwellings and commons has been made accessible from the lower grounds

occupied by the main buildings by a well-constructed road, the cost of which, about \$4000, was borne by Mr. Scripps. The opening up of this portion of the Institution's land, and the acquisition by Mr. E. W. Scripps of some forty acres adjacent to the Institution property on the north, also made accessible by the new road, marks the beginning of a new phase in the development of the "biological colony" as distinguished from the Institution. Mr. Scripps has deeded at a nominal cost small pieces of this land to two members of the staff, F. B. Sumner and P. S. Barnhart, with the understanding that these are to be used as home sites. The problem of what relationship to the Institution ownership of these pieces of land shall carry with it is one that is receiving careful consideration.

It is especially satisfactory to be able to report the continued rapid growth of the library during the year. The total of bound volumes is now about 5300. And hardly less gratifying is it to be able to say that the books and other library material are about as well housed, arranged, and catalogued as it is possible for a library to be. The stack-room now occupied has space for more than 25,000 volumes.

THE YEAR'S SCIENTIFIC WORK

The most striking hydrographic studies made during the year were on the effects of the winter floods on the ocean water. It was found shortly after the great rains of January that samples of water taken from the Institution's wharf showed a density sharply below the normal. Systematic observations were begun at once to ascertain the distance from shore, depth, and duration of this effect.

Although the field data have not yet been fully examined it is possible to report that the diminished specific gravity extended to sea at least twenty miles and lasted until June at least, a period of more than five months.

The plankton collections taken during the continuance of these effects of the flood also show peculiarities that suggest that the life of the open sea in the vicinity of the coast was affected by the great influx of fresh water. But more detailed study of the field data will be necessary fully to establish this point.

Also to be mentioned here, though not coming strictly under the head of hydrography, was the destructiveness of the flood water to the invertebrate life of San Diego and False Bays. The usual luxurious growth of sponges, hydroids, ascidians, etc., on piles, floats, buoys and the like was almost entirely destroyed. But hardly less striking than the destruction of this life was the rapidity of its recovery. The study of these phenomena fell largely to Mr. Barnhart.

In interesting contrast with the incidental, rather spectacular observations on the effects of the flood on the sea water and the marine life of the region has been the emergence during the year from the masses of data accumulated of the truth that in this part of the Pacific Ocean the salinity of the water diminishes slightly from the surface downward to a minimum at about twenty-five fathoms, from which depth it increases slightly as the greater depths are reached. This discovery is due to Dr. McEwen alone, and seems to be original, no reference to the phenomenon in writings on the physics of the sea having yet been found. To what extent the truth holds for the ocean at large is still to be determined.

During a considerable part of the present summer, beginning about the middle of June, Dr. McEwen had charge of the hydrographic and plankton work aboard the United States Bureau of Fisheries steamer "Albatross," engaged in investigating the long-finned albacore in the interest of the tuna canning industry. The arrangement between the Bureau of Fisheries and the Scripps Institution for this combination was that the Institution should have all the water samples and plankton collections taken by Dr. McEwen in return for his professional service in directing the hydrographic work, plus the payment of his wardroom expenses to the ship by the Institution.

Although Dr. McEwen has been able to study the data sufficiently between cruises to bring out several items of interest from the fisheries standpoint, he has not had time yet to make much use of them for his own general hydrographic studies.

As usual the hydrographic and plankton work during the year have been so intimately connected that they cannot be sep-

arated in a general statement. Messrs. McEwen and Michael have worked closely hand in hand nearly all the time. A good example of this is furnished by the development during the year of a combined plankton net, water bottle, and thermometer. The special advantages of this apparatus are: Duplicate closing net hauls and temperatures and water samples are taken simultaneously at each of a series of depths. The reversal of the thermometer holder closes the water bottle, thus making it impossible for the thermometer to register at one depth and the water sample to be taken at another. Finally, the thermometer cannot register nor the water bottle close except when both plankton nets close. By this contrivance not only is greater trustworthiness attained than hitherto in collecting biologic and environic data, but a valuable means is at hand for determining the approximate depth of closure of the nets and water bottle independently of the depth indicated by the amount of cable out. The importance of this last is emphasized by costly past experiences. The apparatus has been so tested that there is no doubt about its workableness. The general design of the apparatus is due to Messrs. Michael and McEwen and the working out of its mechanical details to Engineer James Ross.

A remarkable piece of information obtained by the new net is that two nets exactly alike placed six inches apart, and operated simultaneously rarely catch anything like the same number of organisms. This is the most conclusive disproof yet obtained of the theory that the minute organisms of the sea are disseminated uniformly through the water.

The co-operative mathematical task by Messrs. Michael and McEwen, mentioned in my last report, of devising a probability method by which it is possible to determine the probability that a difference between the averages of two series of observations is significant; and of determining the probability that the average of a series of observations deviates from the true average by a stated amount, was completed in 1914-15; and during the past year tables for the application of the method have been in course of construction, largely through the assistance of Mr. F. P. Clough as computer. This large task will soon be completed and

the results will furnish an important instrument not only for plankton investigations but for dealing with many problems involving the correlation between biologic and environic data.

Another important mathematical undertaking during the year has been that of devising a statistical method for answering such questions as that of the extent to which ascertained correlations between variations in the distribution of organisms and in temperature, for example, are due to the effects of temperature variations, and to what extent to other coincidently varying factors, as of salinity, light, etc.

While these tasks are being prosecuted primarily in the interest of the Institution's plankton investigations and McEwen and Michael work together on them, that Dr. McEwen is chiefly responsible for the mathematical part of the work is fully recognized, especially by Mr. Michael.

Dr. McEwen has continued his study of the absorption of solar radiation by the ocean; but other more immediate demands upon his attention have made it impossible to bring this to a conclusion.

The hydrographic, plankton and dredging records of the Institution have been brought up to date and published through the partnership work of Michael and McEwen; and still further discussion of methods and results has been given.

The main outcome of all this on the biological side, stated in the most general terms, is that not only the *fact of periodic vertical migration of many marine organisms is made far more definite than ever before, but many details of these movements and several causal factors have been discovered.*

Mr. Michael has practically completed his report for the U. S. Bureau of Fisheries on the chaetognatha collected by the "Albatross" during her Philippine cruise of 1907-1910. He has likewise advanced the investigation of the vertical distribution of *Salpa democratica*; but the completion of this as of other plankton studies still awaits the publication of Dr. McEwen's work on probability.

As the result of laboratory studies carried on during the summer of 1915, Dr. C. O. Esterly has made an important con-

tribution during the year to the obscure problem of the food and feeding habits of pelagic copepods. So large a part do these minute crustaceans play in the general life economy of the ocean that anything like a comprehensive understanding of this vast subject must depend in no small degree on knowledge of the food and feeding of these creatures. The possibility—not to say probability—indicated by these studies that the food of the animals consists largely of extremely minute—superminute—shellless organisms, is most interesting and suggests several sorts of future inquiry in this field.

Dr. Esterly has continued his statistical studies of the distribution of copepods; but by the natural process of division of labor this aspect of the Institution's programme of investigations is moving toward Mr. Michael and it is not impossible that to him will fall the main responsibility for all that is done in this direction. For example, Dr. Esterly's beginnings, just mentioned, on the problem of the food of copepods, and his full occupation for the coming year with laboratory experiments on the movement of pelagic animals may be taken to indicate still further the tendency toward differentiation of labor in research.

On the initiative of the Institution Dr. Esterly has been granted a leave of absence from Occidental College to reside at the Institution during 1916-17 and devote himself to experimental studies on the movements of pelagic animals, the aim being to establish more definitely than has yet been done the relation between the statistical evidence for the movements of the organisms in nature, and the laboratory evidence on the reaction of such organisms to external influences.

Work on the Dinoflagellates of the San Diego region, upon which Professor Kofoed has been long engaged has been pushed forward during the year through the employment by the Institution of Dr. Olive Swezy on three-fourths time and Miss Ebba Brease on one-fourth time as research assistants to Professor Kofoed. The entire time of these assistants was passed in Berkeley.

The taxonomic work on this group being once completed, it is obvious that some arrangement will have to be made whereby

a specialist on the group can work at the Institution a considerable part of the time if the marine programme is to be fully carried out. The importance of resident investigators for each of the main groups of pelagic organisms is more obvious than ever now that the wharf provides a means for keeping the living organisms under almost continuous observation.

Dr. Berry's home work, prosecuted under the auspices of the Institution, on the chitons of the California coast has been continued during the year and is nearing completion, as is Professor Daniel's book on the Elasmobranch fishes, to the preparation of which the Institution has continued to contribute.

Miss Ruth A. Forsythe, a high school teacher of science and graduate student, spent most of the year at the Institution studying, in collaboration with the Scientific Director, the littoral ascidians of the coast of Southern California. The result of this work is a paper, nearly ready for the printer, which will be a considerable advance toward that taxonomic fullness of knowledge of this group of animals of the Pacific Coast of North America which has been the Director's ambition for twenty-five years.

A wide range of activities has characterized Dr. Sumner's work on environmental influence and heredity as exemplified by his special studies on the genus of mice, *Peromyscus*.

In accordance with the conditions of the research a considerable portion of these activities has been in the field, partly for the purpose of getting more stock for the experiments and partly for gaining fuller knowledge of the various races of the mice relative to the natural conditions under which they live. Thus from April 25 to June 19, 1916, the following new localities were visited: The volcanic region of Inyo County, for studying the color peculiarities said to be possessed by the mice living among the dark volcanic rocks; the redwood region of the Big Basin and adjacent territory, for determining definitely whether the northern race *P. m. rubidus* occurs in the redwoods of this locality; and several new localities in Humboldt County. The most noteworthy result of this work was the confirmation of an instance in the Humboldt region, hitherto not fully established,

of the importance of isolation for the differentiation of race. Considerable trapping was done in these and other localities, some of the "stock" being transferred alive to the breeding houses at La Jolla, while study series were made of another portion of the collections. The breeding experiment at Berkeley has been discontinued, the individuals of the third cage-born generation having been killed and prepared for detailed study. The total number of living mice of all races now in confinement at the Institution is about one thousand. A portion of these are kept in a pen of concrete, wood, and wire-screen covering an area of 25×50 feet and divided into two compartments, this having been constructed during the year. The floor of this pen is the native soil, in which are growing the commoner wild plants of the region. The purpose of this contrivance is to make the conditions under which the captive animals of both local and alien race are kept, as near as possible like those under which the former live in nature. During June, 1916, Mr. F. H. Holder was again employed for the preparation of another five hundred skeletons for quantitative study. In March Mr. Corwin Seitz succeeded Mr. Stuart Taber as caretaker of the murarium.

Two new experiments have been begun during the year; one to test the inheritance of differences due to differences of functional activities resulting from certain injuries to the hind limbs; the other to test the effects of different sorts of food on the mice. This last experiment is undertaken partly for the purpose of overcoming certain untoward effects of confinement of the mice.

The hybridization experiments between *rubidus*, the darkest race, and *sonoriensis*, the lightest, have been continued. F_1 and F_2 generations have come to maturity and back-crosses between the F_1 mice and both of the parent races have been secured.

Two serious difficulties have been encountered in the experiments. One of these is the infertility and otherwise abnormal condition of many of the cage-bred mice. The other is the existence in each of the races of color differences which are due to causes almost wholly unknown. Mr. H. H. Collins, a candidate for the doctor's degree at the University of California, who had assisted Dr. Sumner in his mouse work at Berkeley, has become

a member of the research staff for the ensuing year, his research work having largely to do with the difficulties above indicated.

An interesting "by-product" of the mouse experiments, reported upon by Dr. Sumner during the year, is the pregnancy of occasional females under circumstances which make it certain that it could not be due to intercourse with the males in the usual order. Dr. Sumner concludes that the cases are the result of superfetation and deferred fertilization.

The major scientific work of the Director during the year has continued to be the general problem of biologic integration, on which progress has been made.

With the starting up in San Diego of two large establishments, one by the Hercules Powder Company and the other by Swift and Company for the commercial utilization of kelp, problems in this quarter have entered upon a new and important phase during the year; and, acting as a collaborator for the United States Government, Mr. Crandall has continued to keep informed on what is being done and to report from time to time to officials at Washington.

The continued rapid growth of the tuna canning industry during the year has emphasized more strongly than ever the importance of the scientific study not only of the long-finned albacore as a fish, but also the whole subject of the conditions of life of this and the other pelagic fishes of the region likely to become economically important. As previously mentioned, Dr. McEwen has had charge of the hydrographic investigation aboard the "Albatross" in her present summer's work on the albacore problem. Initial steps were taken during the year looking to the co-operation of the Institution and the canners in urging upon the attention of both the National and State governments the extreme importance of putting the pelagic fisheries of the region on a scientific basis.

In my last annual report I said, relative to the importance of government action in behalf of scientific investigation of fisheries matters arising in this locality: "The wisdom of meeting such questions in their incipency rather than waiting till, by a drifting policy, complications have arisen that might be avoided

would seem obvious enough." Strong as were the reasons for this remark a year ago, they are doubly so now.

The facilities of the Institution were made use of by thirteen visiting naturalists during the year, the aggregate of service rendered in this way by the Institution being greater probably than in any previous year.

GENERAL EDUCATIONAL WORK

The new public aquarium began running about May 1, 1916. The excellent quality of the sea water brought in; the comparatively small trouble involved in keeping the tanks stocked; and the obvious interest of the many visitors make this one of the most satisfactory of the new acquisitions. Nor is its usefulness by any means limited to its general educative function. Probably few investigators who spend a considerable time at the Institution will fail to see much of interest to them in some of the aquarium animals.

The building contains three tanks of 96 gallons capacity; fourteen tanks of 145 gallons; and two tanks of 228 gallons. Mr. Barnhart reports that up to the present time thirty-five species of fish have been exhibited, besides a large number of crustaceans, mollusks, worms, echinoderms, and coelenterates.

Although museum specimens are, rightly, always less interesting to the general public than are living, active creatures in aquaria, yet in some ways a well selected and arranged museum is more instructive than the aquarium. This is especially true where, as with the museum we are developing, the aim is to exhibit as large a part as possible of the local fauna, and this only.

As long as Mr. Barnhart is obliged to do so much of the work of both the aquarium and museum, the building up of the zoological display collections must go on rather slowly. But we feel that the beginning made is rather creditable, and that the room for expansion provided by the new building assures continued growth. Something has also been done now toward the creation of an oceanographic department to the museum. The possi-

bilities in this direction are very alluring; and Dr. McEwen's interest in the project assures its success if only funds can be secured for the purpose.

Although no advertising has been done for the "supply department" of biological material, a dozen institutions and persons have been, according to Mr. Barnhart, supplied with material during the year. Considerable stores of such supplies are being accumulated as occasion offers, and there are clear indications that a useful department can be built up—useful not only as a source of revenue to the Institution but as a means of extending acquaintance with the life of this portion of the Pacific. And this acquaintance should be greatly facilitated by the handbook of the marine animals of our shores upon which Mr. A. M. Snook and Dr. Myrtle E. Johnson have been engaged for some time, and which enterprise the Institution is very glad to aid in every way possible.

All the members of the staff attended the scientific meetings in San Francisco and vicinity in August, 1915, as representatives of the Institution in one capacity or another, the Institution contributing part of the expenses. Under present circumstances there can be no doubt about the wisdom of the small expenditures incurred in this way, though this statement implies nothing as to what this or any other institution's general policy ought to be in such matters.

The rather extensive preparation for the "Assembly in Science" at the Institution from June 26 to August 5, 1916, produced disappointing results as far as concerns one of the main objects at which the plan aimed; namely, that of bringing to the Institution science teachers in the secondary schools. On the other hand the response by the general local community was gratifying. Query as to why so few teachers and students availed themselves of what we had to offer has not yet elicited any very satisfactory answer. It is probable, however, that our unwillingness to shape the courses offered in accordance with ordinary college instruction, and to give credits toward a college degree or for other purposes, were influential factors. This "Assembly" was looked upon by the staff from the outset as an experiment, and

whether or not experimenting shall be carried further will have to be decided at an early date.

A week's celebration of the Shakespeare tercentenary was held at the University of Texas in April, 1916. A unique feature of the celebration was the idea of including in it an address on the discovery of the circulation of the blood by Wm. Harvey, the first announcement of which occurred almost simultaneously with Shakespeare's death. The Scientific Director was invited to give this address, the subject chosen being "Know Thyself as Interpreted by Socrates, Shakespeare, Harvey, and Men of Today." While in Austin he also read a paper before the Texas chapter of Sigma Xi on "Are we obliged to assume that life ever arose 'spontaneously'?"

Respectfully submitted,

WM. E. RITTER,
Director.

SECRETARY OF THE REGENTS

UNIVERSITY OF CALIFORNIA,

BERKELEY, July 1, 1916.

*To the Honorable Board of Regents
of the University of California:*

GENTLEMEN: I have the honor of presenting the following
Secretary's Report for the year ending June 30, 1916.

Respectfully submitted,

VICTOR H. HENDERSON,
Secretary of the Regents.

REGENTS OF THE UNIVERSITY, 1915-16

REGENTS EX OFFICIO

HIS EXCELLENCY HIRAM WARREN JOHNSON - - - Sacramento
Governor and ex officio President of the Regents

HIS HONOR JOHN MORTON ESHLEMAN, A.B., M.A. (to February 28, 1916)
Lieutenant-Governor

HIS HONOR WILLIAM DENNISON STEPHENS,
 (from July 22, 1916) - 1140 West 27th Street, Los Angeles
Lieutenant-Governor

CLEMENT CALHOUN YOUNG, B.L. - - 80 Post Street, San Francisco
Speaker of the Assembly

HON. EDWARD HYATT, B.S. - - - - - Sacramento
State Superintendent of Public Instruction

HON. JOHN M. PERRY - - - 10 West Weber Avenue, Stockton
President of the State Agricultural Society

LIVINGSTON JENKS, A.B., LL.B. - - -Mills Building, San Francisco
President of the Mechanics' Institute

BENJ. IDE WHEELER, Ph.D., LL.D., Litt.D., L.H.D., California Hall, Berkeley
President of the University

APPOINTED REGENTS

The term of the appointed Regents is sixteen years, and terms expire March 1 of the year indicated. The names are arranged in the order of original accession to the Board.

ISAIAS WILLIAM HELLMAN, Esq.	-	-	-	-	-	-	1918
Wells, Fargo-Nevada National Bank, San Francisco							
MRS. PHOEBE APPERSON HEARST	-	-	-	-	-	-	1930
Pleasanton. Business address: 410 Hearst Building, San Francisco							
ARTHUR WILLIAM FOSTER, Esq.	-	-	-	-	-	-	1932
1210 James Flood Building, San Francisco							
GARRETT WILLIAM McENERNEY, Esq.	-	-	-	-	-	-	1920
2002 Hobart Building, San Francisco							
GUY CHAFFEE EARL, A.B.	-	-	-	-	-	-	1918
14 Sansome Street, San Francisco							
RUDOLPH JULIUS TAUSSIG, Esq.	-	-	-	-	-	-	1932
Main and Mission Streets, San Francisco							
JAMES WILFRED MCKINLEY, B.S.,	-	-	-	-	-	-	1922
706 Security Building, Los Angeles							
JOHN ALEXANDER BRITTON, Esq.	-	-	-	-	-	-	1930
445 Sutter Street, San Francisco							
CHARLES STETSON WHEELER, B.L.	-	-	-	-	-	-	1928
Nevada Bank Building, San Francisco							
WILLIAM HENRY CROCKER, Ph.B.	-	-	-	-	-	-	1924
Crocker National Bank, San Francisco							
PHILIP ERNEST BOWLES, Ph.B.	-	-	-	-	-	-	1922
American National Bank, San Francisco							
JAMES KENNEDY MOFFITT, B.S.	-	-	-	-	-	-	1924
First National Bank, San Francisco							
REV. CHARLES ADOLPH RAMM, B.S., M.A., S.T.B.	-	-	-	-	-	-	1928
1100 Franklin Street, San Francisco							
EDWARD AUGUSTUS DICKSON, B.L.	-	-	-	-	-	-	1926
1631 Cimarron Street, Los Angeles							
JAMES MILLS, Esq.	-	-	-	-	-	-	1926
Hamilton City, California							
CHESTER HARVEY ROWELL, Ph.B.	-	-	-	-	-	-	1920
Fresno, California							

OFFICERS OF THE REGENTS

HIS EXCELLENCY HIRAM WARREN JOHNSON	- - -	Sacramento
	<i>President</i>	
RALPH PALMER MERRITT, B.S.	- -	220 California Hall, Berkeley
	<i>Comptroller</i>	
VICTOR HENDRICKS HENDERSON, B.L.	-	209 California Hall, Berkeley
	<i>Secretary</i>	
MORTIMER FLEISHHACKER	-	Anglo-California Trust Company, San Francisco
	<i>Treasurer</i>	
WARREN OLNEY, JR., A.B., LL.B.		Merchants' Exchange Building, San Francisco
	<i>Counsel</i>	

STANDING COMMITTEES OF THE REGENTS FOR 1915-16*

Finance: Regents Earl, Foster, Britton, Moffitt, Taussig, Eshleman (to February 28, 1916), and as Member Emeritus, Regent Hellman.

Grounds and Buildings: Regents Britton, Mrs. Hearst, Jenks, Bowles, and C. S. Wheeler.

Medical Instruction: Regents Crocker, Moffitt, Ramm, Dickson, and Taussig.

University Hospital: Regents Crocker, Taussig, Britton, Earl, and Moffitt.

Agriculture: Regents Foster, Dickson, Jenks, Mills, and Perry; Regent Bowles alternate.

Lick Observatory: Regents Ramm, Crocker, McEnerney, and Young.

Curriculum and Degrees: Regents Rowell, Moffitt, and C. S. Wheeler.

Wilmerding School: Regents Taussig, Earl, and Moffitt.

Scripps Institution for Biological Research: Regents Dickson, Eshleman (to February 28, 1916), and Hyatt.

Executive Committee: This committee consists of the chairmen of all the other committees.

* The President of the Board of Regents and the President of the University are ex officio members of all committees of the Board. In each committee the name of the chairman is first and the name of the vice-chairman second.

SPECIAL COMMITTEES OF THE REGENTS DURING 1915-16*

Committee on Committees for 1916-17: Regents Earl, Britton, Dickson, Moffitt, and Taussig.

STANDING COMMITTEES OF THE REGENTS FOR 1916-17*

On June 13, 1916, the Board voted to recommend to the President of the Board that the Standing Committees for 1916-17 should be as follows:

Finance: Regents Earl, Foster, Britton, Moffitt, Taussig, and, as Member Emeritus, Regent Hellman.

Grounds and Buildings: Regents Britton, Mrs. Hearst, Jenks, Bowles, and C. S. Wheeler.

Medical Instruction: Regents Crocker, Moffitt, Ramm, Dickson, and Taussig.

University Hospital: Regents Crocker, Taussig, Britton, Earl, and Moffitt.

Agriculture: Regents Foster, Dickson, Jenks, Mills, and Perry; Regent Bowles alternate.

Lick Observatory: Regents Ramm, McEnerney, Young, and Crocker.

Curriculum and Degrees: Regents Rowell, Moffitt, and C. S. Wheeler.

Wilmerding School: Regents Taussig, Earl, and Moffitt.

Scripps Institution for Biological Research: Regents Dickson, McKinley, and Hyatt.

Executive Committee: This committee consists of the chairmen of all the other committees.

*The President of the Board of Regents and the President of the University are ex officio members of all committees of the Board. In each committee the name of the chairman is first and the name of the vice-chairman second.

Death of Regent Eshleman:

On March 14, 1916, President Wheeler reported to the Regents the death at Indio, California, on February 28, 1916, of Lieutenant-Governor John Morton Eshleman, a Regent ex officio of the University since January 4, 1915.

The Regents adopted the following resolutions concerning the death of Lieutenant-Governor Eshleman:

WHEREAS, the people of California have suffered a grievous loss through the untimely death of John Morton Eshleman, Lieutenant-Governor of California, Regent of the University, and wise, just, and faithful servant of the common good, now therefore, be it

Resolved, That the Regents of the University of California express their profound sorrow, the pride which they, as the governing board of the University of California, feel in the career of splendid public service achieved by this honored alumnus of the University, and their deep sympathy with his bereaved family.

On March 17 Regent Guy C. Earl addressed a University Meeting in the Harmon Gymnasium on the theme of the personality and the achievements of Lieutenant-Governor Eshleman.

Appointments of Regents:

Reappointments, appointments, and other changes in the membership of the Board of Regents took place during the year as follows:

Regent A. W. Foster, first appointed in 1900, was reappointed by Governor Johnson for sixteen years from March 1, 1916.

Regent Rudolph J. Taussig, first a Regent ex officio, as President of the Mechanics Institute, from 1902, and first appointed a Regent of the University in 1906, was reappointed for sixteen years from March 1, 1916.

Regent Livingston Jenks was re-elected President by the Mechanics Institute (as such he is a Regent ex officio) for one year from March 9, 1916.

Regent John M. Perry was re-elected by the State Agricultural Society President of the State Board of Agriculture (and as such Regent ex officio) for one year from February 10, 1916.

Hon. William Dennison Stephens of Los Angeles on July 22, 1916, was appointed Lieutenant-Governor (becoming thereby a Regent *ex officio*) as successor to Lieutenant-Governor John Morton Eshleman, who died February 28, 1916.

Death of Professor Hilgard:

On January 11, 1916, President Wheeler presented the following report to the Regents in regard to the death of Professor Eugene Woldemar Hilgard:

"I report the death on Saturday, January 8, 1916, of Eugene Woldemar Hilgard, Professor Emeritus of Agriculture in the University of California. Professor Hilgard was one of the most distinguished of contemporary scientists in the field of soil geology and the agricultural and horticultural sciences. Born January 5, 1833, at Zweibrücken, Rhenish Bavaria, of a family of distinguished lineage and station, he was brought to the United States at the age of three, and educated at Belleville, Illinois. He then went to Germany and took his Doctor of Philosophy degree at Heidelberg in 1853. He was State Geologist in Mississippi from 1855 to 1873, Professor of Chemistry in the University of Mississippi from 1866 to 1873, Professor of Geology and Zoology in the University of Michigan from 1873 to 1875, and in 1874 became Professor of Agriculture and Dean of the College of Agriculture of the University of California. After thirty years of service, he retired as Professor Emeritus in the University of California in 1904. One of the founders of the science of soil geology, and distinguished for discoveries in many fields of agricultural science, Professor Hilgard's discoveries as to the reclamation of alkali lands made his name known throughout the habitable globe, for his methods for preventing damage to land by alkali came to be used in Africa, India, Australia, and wherever else irrigation is practiced. Professor Hilgard had received the Liebig Medal from the Munich Academy of Science, a gold medal from the Paris Exposition of 1900, and many other honors."

Mississippi Resolutions as to Professor Hilgard:

On April 11, 1916, President Wheeler reported to the Regents that he had received from the University of Mississippi the following resolutions adopted by its faculty on February 29, 1916:

"Dr. Eugene W. Hilgard, in the early days professor in the University of Mississippi, has recently died at the University of California. As

State Geologist of Mississippi he did pioneer work and left in his 'Geology and Agriculture of Mississippi,' published in 1860, a valuable contribution to science, which has formed the foundation of all later geological work in this state. The University of Mississippi wishes to record in its minutes this tribute to the memory of Dr. Hilgard and this recognition of his valuable scientific service."

Death of Professor F. W. Putnam:

On September 14, 1915, President Wheeler reported to the Regents the death in Cambridge, Massachusetts, on August 14, 1915, at the age of seventy-seven, of Dr. F. W. Putnam, Professor of Anthropology, Emeritus, in the University of California. "His vision and skill," reported President Wheeler, "created for us the anthropological collection," given to the University by Mrs. Hearst.

Death of Rufus M. Grant:

On February 8, 1916, President Wheeler reported to the Regents the death on January 29, 1916, of Mr. Rufus M. Grant, Instructor in Carpentry in the Wilmerding School of Industrial Arts. Mr. Grant was a pioneer member of the faculty of the Wilmerding School. He was first appointed Master of the Carpentry Department on April 11, 1899, and served as Superintendent of Construction during the erection of the school's first building.

Method for Recommending Degrees:

That the practice must continue of having recommendations for degrees emanate from the faculties of the respective colleges, rather than from the Academic Senate, was decided by the Regents on April 11, 1916, through adoption of the following report of the Committee on Curriculum and Degrees:

"We would report that the Regents referred to the Committee on Curriculum and Degrees the recommendation of the Academic Senate that the Academic Senate be authorized to recommend the conferring of degrees in course in the name of the University when the power to recommend is not otherwise reserved by law. Your committee requested legal advice upon this matter from the Attorney of the Regents. In his response to the question laid before him, Attorney Olney says:

“I have for acknowledgment your letter dated October 18, 1915, together with a copy of a memorial from the Academic Senate to the Regents, concerning the proposal that the conferring of degrees in course shall be hereafter recommended to the Regents by the Senate instead of as heretofore by the respective faculties.

“By Section 8 of the Organic Act it is provided that so far as the Affiliated Colleges are concerned degrees shall be awarded to students recommended therefor by the respective faculties of said colleges.

“With respect to the University generally, it is provided by Section 9 of the Organic Act that each professor and instructor of the course, for the completion of which the degree is to be awarded, shall cast one vote upon each application for recommendation to the Board of Regents for the degree. In my opinion the word “course” is here substantially equivalent to the word “college” as used generally in the Organic Act.

“From the foregoing, it follows that the Organic Act contemplates that degrees in course shall be conferred upon recommendation of the respective faculties, not only of the Affiliated Colleges, but of the colleges of the University generally.”

“It is, therefore, the sense of the Committee on Curriculum and Degrees that the action requested by the Academic Senate cannot be taken by the Regents.”

School of Commerce:

On April 11, 1916, the Regents referred to the Committee on Curriculum and Degrees and the President of the University, with power to act, the recommendation made by the Academic Senate in a memorial addressed to the President and the Regents that a School of Commerce be established, regulations adopted therefor, and the faculty thereof defined.

Degree of “Graduate in Education”:

On April 11, 1916, the Regents approved the recommendation of the Academic Senate that a new higher professional degree be established, “Graduate in Education,” to be conferred on the completion of the following requirements:

1. Not less than four years of successful professional experience.
2. Two full years of graduate study, one of which must have been spent at the University of California.
3. A minimum of thirty-six units of upper division and graduate work, distributed as follows:

(a) A minimum of twelve units of courses in education based on a "group elective" in education or its equivalent, and including at least four units of seminar work during the second year, this twelve units, together with professional experience and a professional thesis, to constitute the candidate's "major."

(b) A minimum of twelve units of advanced work in a minor.

(c) A professional thesis and an examination, both to be under the direction of the School of Education and both to be subject to the usual rules of the Committee on Higher Degrees.

Faculty of the School of Education:

On April 11, 1916, it was voted that as recommended by the Academic Senate and the Committee on Curriculum and Degrees the faculty of the School of Education consist of

(1) The members of the Department of Education;

(2) The professors or instructors in other departments who give professional courses approved as such by the President and the Department of Education;

(3) One member from each department or college or school representing a secondary school subject, but offering as yet no professional courses, appointed by the President in consultation with the department concerned and the School of Education.

University High School:

On March 14, 1916, it was voted to continue for 1916-17 cooperation with the Oakland School Department in the conducting of the University High School—conducted in Oakland as a practice-teaching school where students of the School of Education may have training in the art of teaching.

Four-Year Course in Dentistry:

On April 11, 1916, the recommendation of the Academic Senate was approved that beginning with 1917-18 the College of Dentistry inaugurate the four-year course approved by the Dental Faculties Association of American Universities.

Dental Infirmary:

On February 8, 1916, the Regents voted to advance \$30,000 for the building and equipping of an extension for the Dental Infirmary which would enlarge the teaching space sufficiently to

accommodate sixty more students than at present. the principal and interest advanced to be repaid to the General Fund of the University from the receipts of the College of Dentistry within three and one-half years.

Future of the Medical School:

On January 11, 1916, the Regents adopted the following declaration of their policy for the future of the University of California Medical School:

“With the University Hospital well under way certain problems of expansion require immediate attention. In order to complete an efficient hospital plant and to bring all departments of the school together at the earliest possible date, new buildings must be erected and existing buildings must be utilized in different ways.

“A. New buildings most necessary at present are:

“1. A building to house the departments of Anatomy and Pathology. To be erected near the Hooper Foundation and back of the new hospital. Estimated cost, \$150,000.

“2. An Out-Patient Building. To be built in front of the present hospital building. Estimated cost, \$100,000.

“3. A Nurses' Home—to provide suitable quarters, recreation rooms, dining-rooms, kitchens, etc., for one hundred nurses. Estimated cost, \$100,000.

“B. Adaptation of existing buildings to new needs would entail:

“1. Readjustment of the present hospital building to the needs of the departments of Physiology and Biochemistry, a certain portion of the space to be utilized as student laboratories. Estimated cost of repairs, \$30,000.

“2. Removal of the Anthropological collection and rearrangement of the building to provide proper administrative offices, student rooms, and library space.

“With these changes and the erection of a power plant on Fourth Avenue, a most efficient medical institution would be assembled on the Parnassus site now owned by the University.

“C. It would then be time to aim at consummation of the following ideals:

“1. The removal of the Dental and Pharmacy Schools, and the transformation of the present Dental Building into labora-

tories suitable to the needs of the State Departments of Hygiene, Pure Foods, and Sanitary Engineering.

“2. The erection of a private clinic of at least one hundred beds.

“3. The erection of a Psychopathic Pavilion.

“4. The erection of a pavilion for contagious and infectious diseases.

“5. The erection in the neighborhood of a students' dormitory with provision for a restaurant and recreation grounds.”

Fox Memorial Beds:

On August 10, 1915, it was reported to the Regents that bonds of the Spring Valley Water Company of a par value of \$100,000 had now been deposited with the Treasurer of the Regents, by gift of an anonymous friend of the University, as endowment for the “Dr. C. W. and Mrs. Sarah E. Fox Memorial Beds.” (The letter of gift is set forth in full in the annual report of the President of the University for 1914–15, pp. 271–2.)

On September 14, 1915, the Regents approved the recommendation of the Finance Committee that as the interest is paid upon these bonds this income become available for the University Hospital, and that this endowment be kept separately and be entered in the books of the University at the par value of the bonds.

Rules for the University Hospital:

On February 8, 1916, the Regents adopted rules and regulations for the new University Hospital, subject to the power of the Committee on University Hospital to make changes therein, any changes so made by the committee to be reported back to the Regents. The new rules are modeled largely upon the regulations for the government of the Johns Hopkins Hospital, Baltimore, modified by study of the rules of other teaching hospitals of distinction.

Keith Hospital Subscription Settlement:

On December 14, 1915, it was reported to the Regents that in pursuance of authorization voted by the Finance Committee on November 16, 1915, settlement had now been arranged of the

litigation with the heirs of John M. Keith on the basis of an agreement that the estate should pay \$125,000 (with interest to the amount of \$2819.45) of the \$145,000 of Mr. Keith's subscription for the new University Hospital still unpaid at the time of his death, in full discharge of the claim of the Regents against the estate.

Indemnity for J. J. Mack in Keith Settlement:

On April 11, 1916, an agreement of indemnity to J. J. Mack, executor of the will of J. M. Keith, was approved by the Board.

Amalgamation of the Hahnemann Medical College:

On September 15, 1915, the Regents approved the following tentative plan for the amalgamation of the Hahnemann Medical College of the Pacific with the University of California Medical School:

"1. Beginning in August, 1915, all students matriculating in medicine must fulfill the requirements demanded by the University of California Medical School.

"2. All students in the first two years will take all work in common except in *Materia Medica*. In this subject thirty-two hours of so-called 'regular' *Materia Medica* and thirty-two hours of Homoeopathic *Materia Medica* will be given in the second semester of the second year. Students may elect either one of these courses, and hours of instruction will be so arranged as to permit of election of both courses by all students who may so desire.

"3. In the third and fourth years all students will take the same courses except in *Materia Medica* and Therapeutics and in Clinical Medicine. Elective courses in these subjects will be offered so that students may choose whether they will take the work under instructors of the so-called 'Regular' or 'Homoeopathic' school. If possible the schedule will be so arranged as to permit students to take the courses offered by both departments if they so desire.

"4. Instruction in Homoeopathy shall be in charge of two professors, to be added to the Medical Faculty—a Professor of Homoeopathic *Materia Medica* and a Professor of Applied Homoeopathic Therapeutics—maintained and paid, until June 30, 1917, by the Hahnemann Medical College of the Pacific. The Professor of Applied Homoeopathic Therapeutics will be in charge of the clinical work to be substituted for similar work in the Department of Medicine. He will consult with the Professor of Medicine in the University, who must ratify the standard of instruction in this branch as in all other divisions of the Department of Medicine.

"5. General lectures in Homoeopathic Materia Medica will be offered beginning in the second semester of the second year, January, 1916. Advanced work in Materia Medica will be inaugurated August, 1916, if students are available.

"6. The Teaching in 'Applied Homoeopathic Therapeutics' will be offered beginning August, 1917.

"7. Until amalgamation of the schools can be finally effected and until its present student body can be graduated the Hahnemann Medical College shall proceed with its prescribed course of instruction during the next three years under the same conditions as now exist.

"8. The didactic and clinical instruction of Hahnemann students during the transitional period shall be maintained and effected through the present homoeopathic organization and shall be concluded at the present location of the college and shall be granted the same consideration as to hospital facilities at the San Francisco Hospital and the Hahnemann Polyclinic as exist at the present time.

"9. The students of Hahnemann Medical College now in attendance in the sophomore, junior and senior classes, as shall be eligible and shall qualify for the degree will receive the diploma of the Hahnemann College but at the same time and place of graduation of University medical students.

"10. During the transitional period of three years, the Hahnemann Medical College shall meet all the expenses incurred in educating the three classes now constituting the student body, and the receipts from student fees and other resources of the Hahnemann College shall be allowed by the University for said purpose of maintenance.

"11. After July 1, 1917, the University shall meet the salary to be agreed upon in support of the chairs of Homoeopathic Materia Medica and Applied Therapeutics in the University of California Medical School as soon as such lecture courses are inaugurated and instruction proceeds.

"12. As soon as practicable the clinics of Applied Homoeopathy will be developed in conjunction with the Medical Clinic of the University. The Professor of Applied Homoeopathic Therapeutics will be chief of such clinic, and will have at least two clinic rooms at his disposal. As soon as this is effected the present Homoeopathic Clinics will be discontinued.

"13. The Hahnemann Hospital will be conducted under its present management and will not be taken over by the Regents of the University.

"14. In event of a redistribution of clinical beds at the San Francisco Hospital because of the absorption of the Hahnemann College by the University a number of beds in the ratio of one in five shall be set aside by the University of California Medical School for the teaching of Applied Homoeopathy.

“15. The real property of the Hahnemann Medical College of the Pacific shall be conveyed to the Regents of the University of California free of debt.”

Homoeopathists Commend Merger:

On August 10, 1915, it was reported to the Regents that the California State Homoeopathic Medical Society at its annual session had adopted resolutions expressing its unanimous and unqualified approval of the amalgamation of the Hahnemann Medical College of the Pacific with the University of California Medical School, and pledging “its united efforts and influence with the homoeopathic profession of the Pacific states toward sustaining the academic standing and increasing the numerical strength of the University Medical School.”

Children's Hospital Arrangement:

On April 11, 1916, execution was authorized of an agreement with the Hospital for Children and Training School for Nurses. Subsequently the making of an arrangement for co-operation without expense to the University, was delegated to the medical faculty.

Toland Amphitheatre:

On April 11, 1916, it was voted, as recommended by President Wheeler and the faculty of the Medical School, that as a tribute to the memory of Dr. Hugo H. Toland, who gave to the University the Toland Medical College and long served as a teacher therein, the amphitheatre in the new University Hospital be designated “The Toland Amphitheatre.”

Hooper Foundation Budget:

On August 10, 1915, the Regents approved the budget recommended by the Trustees of the George Williams Hooper Foundation for Medical Research for 1915-16, one item of the \$50,000 budget being an item for “traveling expenses, including a trip east yearly for members of the staff to attend meetings and to see the work that is going on in other laboratories, it being intended that the amounts for traveling expenses ought to be sufficient to

pay for railroad fare and berth, the person making the journey to pay for meals, etc." A grant of \$2000 was made to aid Dr. F. P. Gay, Professor of Pathology, and Dr. T. B. Robertson, Professor of Biochemistry, in investigations in biological specificity in the field of typhoid.

Mill-site Property in Eureka:

On March 14, 1916, the execution of four notes for \$10,000 each, payable January 2, 1917, 1918, 1919, and 1920, was authorized by the Regents to be used to complete payment for the mill-site in Eureka, purchased at a cost of \$50,000 from the Henry Swart Lumber Company for future use in connection with the development of the redwood lands given to the University by Mrs. Hooper as endowment for the George Williams Hooper Foundation for Medical Research.

Summer Assembly in Science at La Jolla:

On November 9, 1915, the Regents approved the plan proposed by Director William E. Ritter for holding a Summer Assembly in Science at the Scripps Institution for Biological Research. It was reported that President Wheeler had commended the proposal in a letter of November 8, 1916, stating:

"I think the proposal is in entire accord with the purposes of the Institution as they were conceived of at its foundation. I think that the use of the Institution as proposed in this outlined plan, is entirely proper and can be demonstrated without hindrance to the scientific work there undertaken. Indeed, it seems to me likely that it will be advantageous to the staff to formulate, for instruction, the results of their own work and I certainly think that, for school teachers and many who are not teachers, the opportunity for attendance on these lectures and demonstrations may be of significant value."

Professor Ritter's proposal was in part as follows:

"The Scripps Institution is being developed on the theory that endowed research in 'pure science' is absolutely essential to continued progress in civilization. In a democratic country like ours, practice in accordance with this theory involves two things: first, provision for investigation; and second, definite measures to disseminate the fruits of

investigation as widely as possible among the people. This two-fold relation between the community and institutions of scientific investigators seems not to have been seen clearly enough either by the public or by men of science.

"The research members of the Institution regard their positions not so much in the light of privileges to be enjoyed, as opportunities and obligations to serve the public. Hitherto the conditions of development of the Institution have not been such as to warrant undertaking anything very definite toward a general dissemination of the technical knowledge in which the Institution's activities lie. Now, however, with part of the funds that have come from the 'investors' (as Miss Scripps and Mr. Scripps prefer to be called), and from the State of California, the Local Board of Management has, with the sanction of the Regents of the University, decided to undertake a definite form of public education. It is proposed to try the experiment of a six weeks' meeting or assembly during the summer of 1916, and to continue this as a regular annual event, should the experiment prove reasonably successful.

"While the assembly will have particularly in view the needs of teachers of the biological sciences and physical geography in the secondary schools, it will be open, subject to restrictions made necessary by limited space accommodations, to anybody in position to profit by the work to be carried on. During the six weeks, the entire time of the staff taking part in the meetings, excepting such as may be imperatively demanded by certain aspects of their experimental work, will be at the disposition of the visitors.

"While eager to try this experiment, the Local Board yet feel constrained to invite special attention to the following consideration: as stated above, the research members of the Institution recognize a two-fold obligation resting upon them: first, that of producing results by scientific investigation; and second, that of doing all they can to make these results useful to the public. But because of the well-known fact that scientific research is exceedingly time-consuming—so much so that an investigator may need hardly more than a few hours to present in popular form the essentials of a year's work—it follows that if a man holding a professedly research position put himself unreservedly for a few weeks each year at the service of learners, he is doing all that is possible without serious interference with his whole duty. Then, consequently, our research men insist that the ten and a half months of the year left after deducting the month and a half to be devoted to visitors shall be sacred to their investigations, this is to be understood as meaning that only by this division of time can their highest effectiveness to the general good be secured.

"Two somewhat distinct types of work will be tried. First: the visitors will be given opportunity to increase their knowledge in the provinces of nature that are being specially investigated at the Institu-

tion. The work here will be led by the research members of the staff each in his own way, and in the province of his own researches. Talks and demonstrations will probably be the chief means of imparting knowledge; but it is hoped that much will be done by personal conference. Those of the visitors sufficiently advanced in training to undertake research, and who would like to try their hand in this way in co-operation with the research men, will be given every encouragement and assistance. The second type of work will have in view increase of knowledge on the part of the visitors about the general marine fauna of the California coast. This work will be under the guidance of those who have charge of the Institution's aquarium and museum, and of general collecting. In the nature of the case, the studies here will be chiefly systematic and ecological.

"No stated fee will be charged those who participate in the laboratory and other practical work, but each visitor of this class will be expected to deposit \$10.00 with the business office. Against this charges will be made to cover the direct outlay incurred by the Institution on the visitor's account. Should the deposit not be used up the balance will be returned at the close of the assembly. Should there be any who would like to hear the talks and have the use of the library without doing laboratory or other observational work, this privilege can be had by payment of \$3.00 a week.

"No examinations or grade marks or credits will be given, the assumption being that desire for knowledge is the controlling motive of all who avail themselves of what is offered."

This plan was approved, subject to the approval of the Committee on San Diego Marine Biological Laboratory.

On December 14, 1915, the Committee on San Diego Marine Biological Laboratory recommended that the Regents approve the project of a Summer Assembly in Science, provided that it be understood that the expense involved is to be defrayed from the income of the Scripps Institution and from fees to be paid by prospective students. It was so voted.

Anthropological Exhibits at the Palace of Fine Arts:

On June 13, 1916, it was reported that in pursuance of action previously taken by the Board, President Wheeler had arranged for exhibiting for a time in the Palace of the Fine Arts in San Francisco certain objects from the collections of the Museum of Anthropology of the University.

Scandinavian Department Petition:

On April 11, 1916, a petition was presented from the Scandinavian Club of the University of California and a large number of other signers requesting the establishment of a Scandinavian Department in the University.

Scholarship Stipends:

On September 14, 1915, President Wheeler reported to the Regents that it is the custom to add to the apportionment for scholarships for an ensuing year scholarship stipends not used during a particular year.

George F. Reinhardt Memorial Fund:

On September 14, 1915, it was reported to the Regents that to date 418 members of the Class of 1915 had signed pledges to pay \$3.50 each yearly for twenty years to carry insurance to the amount of \$1000 each on the lives of twenty-five male members of the class, the eventual proceeds to constitute endowment for the George F. Reinhardt Memorial Insurance Fund (in honor of Dr. Reinhardt, Professor of Hygiene and University Physician, and creator of the Infirmary system), a prospective gift of the Class of 1915.

Dental Clinic at the Infirmary:

On August 10, 1915, the Regents approved President Wheeler's recommendation that two dental surgeons be added to the staff of the Infirmary. This means that in addition to receiving all the medical and hospital care they may need in return for an Infirmary fee of \$3 each half-year, the students may now also have dental work done at the Infirmary. For such dental services they pay a proportionate share of the expense of maintaining the dental clinic, the cost to the individual student coming to about two-fifths the usual amount of dental charges.

University Building Bonds:

On August 31, 1915, a special meeting of the Regents was held to adopt resolutions formally requesting the Governor of California to direct the State Treasurer to proceed immediately

to sell the University Building Bonds, of the par value of \$1,800,000, the issuance of which had been voted by the people of California on November 3, 1914, through approval of an initiative measure proposed by the Alumni for the erection of new buildings on the campus at Berkeley.

Bond Money for Furnishings:

On October 12, 1915, it was voted to ask the Legislature at its next session to pass an amendment to provide that any surplus remaining after providing for the cost of the erection of the buildings called for in the University Building Bonds Act may be devoted by the Regents toward the cost of furnishings and equipment for the buildings to be erected from the bonds.

University Building Bond Undertakings:

On February 8, 1916, the Regents approved the following recommendations of the Committee on Grounds and Buildings as to the projects to be undertaken in pursuance of the initiative act by which University Building Bonds to the amount of \$1,800,000 had been voted by the people of California:

“Your Committee on Grounds and Buildings has the honor of presenting the following report and recommendations in the matter of the projects undertaken in consequence of the voting by the people of California of \$1,800,000 in University Building Bonds.

“The funds available for expenditure are as follows:

Par value of the University Building Bonds	\$1,800,000
Premium on the University Building Bonds	51,552
Balance of the bequest of Charles F. Doe for the University Library, as of July 1, 1916	86,000

Total available	\$1,937,552
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“To construct the new Agriculture and Chemistry Buildings of granite, to furnish the buildings and to build and equip the necessary unit of the heating and power plant would cost 2,062,000

“If, however, the new Chemistry Building and the new Agriculture Building be built in concrete, instead of in granite, it will be possible to build the four buildings called for by the

initiative act for the University Building Bonds, to build and equip the new unit of the heating and power plant necessary for heating the buildings provided for by the University Building Bonds, and to furnish and equip all four buildings—it having already been voted by the Regents to recommend to the Legislature at its next session that the initiative act for the University Building Bonds be amended so as to permit use of the proceeds of the bonds for furnishings and equipment, as well as for construction.

“We recommend, therefore, the adoption of the following schedule for the completion and equipment of the four buildings, including provision of the new heating unit (the agriculture and chemistry buildings to be in concrete instead of granite), within the amount of the funds available from the University Building Bonds and the bequest of Mr. Doe:

Benjamin Ide Wheeler Hall	\$700,000
Completion of the Library, including book-stacks.....	525,000
Chemistry Building (in concrete)	160,000
Agriculture Building (in concrete)	350,000
New unit of the Power Plant	70,000
Furnishings and equipment for:	
Benjamin Ide Wheeler Hall	27,000
Library	22,000
Chemistry	60,000
Agriculture	25,000
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	\$1,939,000.”

Hilgard Hall:

On April 11, 1916, it was voted that as recommended by President Wheeler and the Council on Agriculture the second unit of the agricultural group, about to be built from the University Building Bonds, be named Hilgard Hall, in honor of Professor Hilgard, head of the College of Agriculture from 1875 to 1906.

Building Contracts Approved:

Building contracts were approved by the Regents during the year 1915-16 as follows:

For the University Hospital in San Francisco:

Arthur Arlett	Brickwork and tile partitions	\$50,121.00
Bennett Brothers	Hardware	7,287.00

California Plate and Window Glass Company	Glazing	4,640.00
Robert Dalziel	Power Plant	31,206.00
Thomas Day and Company	Lighting fixtures	4,300.00
Gladding, McBean and Company	Architectural terra cotta	22,000.00
Joe Kaiser	Furring, lathing, and plastering	40,237.00
Kiernan and O'Brien	Plumbing	31,298.00
Glenn McElhinne	Floor and wall tiling	21,698.00
McLaren and Peterson	Carpentry	48,300.00
Mission Marble Works	Marble	5,200.00
Monarch Iron Works	Ornamental iron work	10,624.00
NePage McKinney Company	Electrical work	15,975.00
Otis Elevator Company	Elevator	10,985.00
Turner Company	Heating and ventilating	30,790.00
United States Metal Products Company	Roofing and sheet metal work	14,353.00
Vulcan Iron Works	Refrigeration	12,478.00
D. Zelinsky	Painting	14,860.00

Toward the completion of the University Library at Berkeley:

Thomas Day and Company	Lighting fixtures	\$11,653.00
J. D. Hannah	General contract	194,733.00
NePage McKinney Company	Electric wiring	20,426.00
Otis Elevator Company	Elevators	7,485.00
Pacific Rolling Mill Company	Structural steel and steel erection	46,232.00
Raymond Granite Company	Granite	86,600.00
Scott Company	Heating and ventilating	29,880.00
Turner Company	Plumbing	8,215.00
F. W. Wentworth Company	Bookstacks and metal furniture	100,675.63

For Wheeler Hall at Berkeley:

American Art Metal Works	Ornamental metal	\$3,947.00
California Construction Com- pany	Steel erection	11,475.00
*Coleman and Coleman	Excavation and concrete	96,913.00
R. Dalziel	Roofing	16,897.00
Thomas Day and Company	Lighting fixtures	17,446.70
Johns-Manville Company	Acoustic felt	9,150.00
Lange and Bergstrom	Carpentry	83,921.00
NePage McKinney Company	Electric wiring	6,089.00
Otis Elevator Company	Elevator	2,425.00
Pacific Rolling Mills Company	Steel	49,420.00
Raymond Granite Company	Granite	225,000.00
Scott Brothers	Plumbing	14,234.00
J. F. Smith	Plastering	38,750.00
Turner Company	Heating and ventilating	51,880.00
Vermont Marble Company	Marble and terrazzo	20,666.00

For the new unit of the Power Plant at Berkeley:

C. C. Moore and Company	Equipment (net cost)	\$49,589.00
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* On November 9, 1915, adjustments of the Coleman and Coleman contract were approved by the Regents calling for net extras to the amount of \$1638.86.

For the Sather Campanile Esplanade:

California Granite Company	Granite	\$22,250.00
Clinton Construction Company....	Concrete and reinforcing steel, brick and granite walks, brick steps, paths, terraces, etc. (extra order) ..	7,365.00
MacRorie-McLaren Company	Furnishing and planting 54 European sycamore trees (extra order)	378.00
Superintendent of Grounds and Buildings (without contract) ..	Brick sidewalks	1,300.00

For the Sather Campanile:

Clinton Construction Company....	Furring and plastering the interior of the elevator shaft (extra order) ...	\$295.50
David E. Kennedy	Cork carpet for entrance lobby and seventh floor (extra order)	194.00

For buildings at the Riverside Citrus Experiment Station and Graduate School of Tropical Agriculture:

Cresmer Manufacturing Com-pany	General Contract	\$99,829.80
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For the Scripps Institution for Biological Research at La Jolla:

Library Bureau	Library stacks and partial mezzanine floor in new library building	\$2,014.00
Winters and Nicholson	Library building	17,928.00

Regents Win Seibert Suit re Contracts:

On November 9, 1915, Regent Earl stated that he wished to call it to the attention of the Regents that the Seibert Company had made a bid of \$28,997 for the heating and ventilating installation for the University Hospital and a bid of \$30,995 for the hospital power plant, but that the University Hospital Committee, the Finance Committee concurring, had voted to award a contract to the Turner Company for heating and ventilating at \$30,790, and to award a contract to Robert Dalziel, Jr., for the power plant at \$31,206, the Turner Company and Robert Dalziel, Jr., being in their judgment the lowest responsible bidders for such work.

On December 14, 1915, Attorney Olney reported that the case of Seibert Company vs. the Regents, in which the Seibert Company had tried to prevent the award by the Regents of the contracts above referred to to the firms whom the Regents had decided to be the lowest responsible bidders, had been decided by Judge Crothers of the Superior Court of San Francisco in favor of the Regents.

Permanent Building Fund Undertakings:

On February 8, 1916, the Regents appropriated \$77,000 for permanent improvement charges during 1916-17, segregated as follows:

A new Printing Office and University Press quarters on Bancroft way, and preparation of the old Printing Office for use by the Department of Anatomy	\$27,500.00
Payment of the first half of the purchase price for the lot on Telegraph avenue purchased from Mr. Warren Olney, Jr.	22,500.00
Additional equipment for the Printing Office, including one press (this replaced a press discarded), one linotype, etc.	8,000.00
Removal of the Philosophy Building to a new site	3,500.00
Contingencies	5,000.00
New storehouse adjoining the new Printing Office	7,500.00
Nursery and planting	3,000.00
	<hr/>
	\$77,000.00

Campanile Appropriations:

On October 12, 1915, the provision of steps, balustrades, garden planting, walks, etc., in the region of the Sather Campanile, was authorized, the cost, not to exceed \$38,000, to be a charge against the Sather Fund Awaiting Distribution, then containing \$77,374.60.

Liability Insurance for Campanile Elevator:

On June 13, 1916, it was voted to carry liability insurance to the amount of \$150,000 for the elevator in the Sather Campanile.

Campanile Elevator:

That a charge of ten cents should be made for the use of the Campanile elevator by all excepting members of the faculty and officers or students of the University was voted by the Regents on May 9, 1916. On October 12, 1915, it was voted that the date of commencement of operation and the hours of operation of the Campanile elevator be determined by the President of the University, subject to the approval of the Board of Regents.

New Printing Office:

A new building for the Printing Office, with wood frame and cement exterior, was erected during the year at the corner of Bancroft way and Barrow street, as one of the row of buildings of the Service Department. The structure contains excellent accommodations for the University Printing Office and the University Press. The undertaking was made possible by the kindness of Regent James K. Moffitt in lending to the University without interest, for a year, the \$26,000 necessary for the erection of the new Printing Office and the re-equipment, for the use of the Department of Anatomy, of the quarters formerly occupied by the Printing Office. With July, 1916, funds became available in the Permanent Building Fund for the repayment of this advance.

Domestic Science Building:

On April 11, 1916, erection was authorized of a Domestic Science Building, to cost, including equipment, not to exceed \$15,000.

Box Locker System for the Gymnasium:

On May 9, 1916, the Regents voted to install an improved box-locker system in the Harmon Gymnasium, to cost not to exceed \$6700.

Architect's Blueprints:

On October 12, 1915, it was approved that the University pay for blueprints used for taking bids, letting contracts, and executing work on University buildings, the Architect to pay the cost of blueprints of preliminary drawings, drawings for approval, and blueprints for the use of inspectors.

Street Changes on Bancroft and College:

On December 14, 1915, the Regents approved the following recommendation of the Committee on Grounds and Buildings:

“That permission be granted to the municipality of Berkeley to move back the curb two feet along Bancroft way in front of the property on Bancroft way, between Telegraph avenue and

College avenue, owned by the Regents, and also to reduce the width of the roadway of College avenue between Bancroft way and the College-avenue entrance to the University campus by six feet, three feet to be added to the sidewalk area on each side of College avenue, provided that such action is thought legal by the Attorney of the Regents, and provided that no expense to the University be involved in such changes."

Purchase of Land Outside the Sather Gate:

On November 9, 1915, the Regents voted to purchase from Warren Olney, Jr., at \$45,000, as a charge against the Permanent Building Fund, a lot with a frontage of 126.4 feet on the east side of Telegraph avenue, just south of the Sather Gate, with a minimum depth of 107.11 feet, this land being needed for the proper development of adjoining portions of the campus for gymnasium purposes.

Contract for Military Uniforms:

On April 11, 1916, contract was authorized with Roos Brothers for military uniforms for 1916-17.

University Hospital Furnishings:

On May 9, 1916, the policy was approved of obtaining portions of the furnishings for the new University Hospital from the furniture factory of the State Prison at San Quentin.

Kitchen Equipment for the Hospital:

On May 9, 1916, the Regents authorized the execution of a contract for \$7300 with W. W. Montague and Company for kitchen equipment for the new University Hospital.

Lick Observatory Electric System:

On September 14, 1915, the Regents voted an appropriation of \$2400 from the Permanent Building Fund for the improvement of the storage batteries and electric system of the Lick Observatory.

J. W. Carr Contract for a Classroom Building at the Farm:

On December 14, 1915, it was reported that the classroom building at the University Farm for which J. W. Carr had failed

to carry out his contract had now been completed and arrangement effected with the New England Equitable Insurance Company, formerly the New England Casualty Company, providing that the moneys remaining due should be paid over to the company and an indemnity agreement taken from it to protect the Regents against any possible claims, the surety company having already settled with all those who had filed with the Regents notices to withhold moneys from J. W. Carr, the contractor, with the exception of claims aggregating \$1157.45 which the Regents were advised by counsel were not legal claims against either J. W. Carr or the Regents.

Site for Citrus Experiment Station:

On August 10, 1915, the Regents approved and confirmed the purchase at a total cost of \$55,000 of the site at Riverside for the Citrus Experiment Station and Graduate School of Tropical Agriculture.

Site for the Riverside Citrus Experiment Station and Graduate School of Tropical Agriculture:

On October 12, 1915, it was reported to the Regents that purchase had been consummated of the site at Riverside for the Citrus Experiment Station and Graduate School of Tropical Agriculture, the property being conveyed by instruments reading in part as follows:

I. Deed from the Riverside Orange Company, Ltd., a corporation:

"THIS INDENTURE, made this 17th day of June, 1915, by and between THE RIVERSIDE ORANGE COMPANY, LIMITED, . . . a corporation, the party of the first part, and THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, a corporation duly organized under the laws of the State of California, party of the second part, *witnesseth*:

"WHEREAS the party of the second part is about to establish and proposes thereafter to maintain, an experimental station, within the said County of Riverside, for the purpose of thereat conducting experiments with a view to the protection and improvement of the crops of citrus and other fruit trees and other crops whose growth and cultivation now form part, or shall hereafter form part, of the cultivation of the soil of the said County of Riverside and other counties in said State of Cali

fornia, whereby it is expected that the public interest will be greatly advantaged and the wealth and prosperity of the said County of Riverside, and other portions of the State of California, will be safeguarded, promoted and increased;

"Now, therefore, for and in consideration of the premises and also of the sum of ten dollars (\$10.00), lawful money of the United States to it in hand paid by the party of the second part, receipt whereof is hereby acknowledged, the party of the first part does hereby grant, bargain and sell, convey and confirm unto the said party of the second part, and to its successors and assigns, all those certain pieces or parcels of real property situate and located in the County of Riverside, State of California, and particularly described as follows, to wit:

"1. Beginning at a point on the north line of lot one (1), Mrs. M. M. Kendall's Subdivision of the north half (N. $\frac{1}{2}$) of the north half (N. $\frac{1}{2}$) of section 8, township 2 south, range 4 west, San Bernardino base and meridian, as shown on map thereof recorded in the office of the county recorder of the county of San Bernardino, in book 8 of maps, at page 40 thereof, distant one hundred (100) feet easterly from the northwest corner of said subdivision; thence southerly and parallel with the westerly line of said lot 1, to a point one hundred (100) feet north from the south line of said lot 1; thence southeasterly to a point twenty (20) feet north from the south line of said lot 1, said point being one hundred and eighty (180) feet east from the west line of said lot 1; thence northerly parallel with the west line of said lot 1 to the north line of said lot; thence westerly along the northerly line of said lot, eighty (80) feet, to the point of beginning.

"Together with the pumping plant and buildings thereon and all pipe lines, flumes and ditches used in connection therewith and extending therefrom to the Gage Canal, together with all water now developed or that may hereafter be developed on said premises.

"2. All those portions of section 29, township 2 south, range 4 west, San Bernardino meridian, described as follows:

"(a) All those portions of the northwest quarter and of the northwest quarter of the southwest quarter lying above the Box Springs Canyon Road, and all of the west one-half of the northeast quarter; more particularly described as follows:

"Commencing at the intersection of the northeasterly line of the Box Springs Canyon Road and the easterly line of the Canyon Crest Road, thence north $0^{\circ} 8'$ west 1406.71 feet along the easterly line of Canyon Crest Road to its intersection with the northerly boundary line of said Section 29; thence along said boundary line north $89^{\circ} 43'$ east 2611.50 feet to the quarter corner; thence still along said boundary line north $89^{\circ} 49'$ east 1320.80 feet to the northeast corner of the west one-half of the northeast quarter of said section; thence south $0^{\circ} 6'$ east along the line dividing the east and west halves of the northeast quarter of said

section 29 2640.95 feet to the southeast corner of the southwest quarter of the northeast quarter section; thence south $89^{\circ} 44'$ west along the south boundary line of the north half of said section 29 2643.15 feet to the northeast corner of the northwest quarter of the southwest quarter of said section; thence south $0^{\circ} 8'$ east 942.40 feet along the easterly boundary line of said northwest quarter of the southwest quarter of said section to its intersection with the northeasterly line of Box Springs Canyon Road; thence along said northeasterly line of Box Springs Canyon Road the following courses and distances, north $25^{\circ} 04'$ west 206.90 feet; thence deflecting on a curve to the right with a radius of 213.88 feet whose chord bears north $17^{\circ} 34'$ west 55.83 feet; thence north $10^{\circ} 04'$ west 475.26 feet; thence on a curve to the left with a radius of 529.88 feet whose chord bears north $24^{\circ} 40'$ west 267.15 feet; thence north $39^{\circ} 16'$ west 1572.62 feet to the point of beginning of the above description and containing by admeasurement 227.37 acres, more or less.

“(b) Also the following described tract of land situated in the east half of the northeast quarter of said section 29 more particularly described as follows:

“Beginning at a stake two inches square set for the center of the northeast quarter of said section 29; thence along the westerly boundary line of the east half of the northeast quarter south $0^{\circ} 6'$ east 145 feet; thence north $81^{\circ} 54'$ east 230 feet; thence north $0^{\circ} 6'$ west 200 feet; thence north $22^{\circ} 51'$ west 200 feet to a point in the bottom of a ravine; thence north $10^{\circ} 51'$ west 30 feet to a point in the bottom of same ravine; thence north $23^{\circ} 36'$ west 100 feet to a point in the bottom of same ravine; thence north $5^{\circ} 24'$ east 90 feet to a point in the bottom of same ravine; thence north $9^{\circ} 6'$ west 100 feet to a point in the bottom of same ravine; thence north $22^{\circ} 37'$ west 260 feet to a point on the boundary line between the east and west halves of the northeast quarter of said section 29, said point being south $0^{\circ} 6'$ east 496.95 feet from the northwest corner of the northeast quarter of the northeast quarter of said section 29; thence along the line dividing the east and west halves of the northeast quarter of said section 29 south $0^{\circ} 6'$ east 821 feet to the point of beginning of the above description and containing 3.15 acres more or less.

“(c) Also that portion of the west one-half of said section 29, lying below the Box Springs Canyon Road and more particularly described as follows:

“Commencing at the intersection of the northerly line of Pennsylvania Avenue and the easterly line of Canyon Crest Road thence along the easterly line of said Canyon Crest Road north $0^{\circ} 8'$ west 1134.85 feet to its intersection with the southwesterly line of Box Springs Canyon Road; thence along the southwesterly line of Box Springs Canyon Road south $39^{\circ} 16'$ east 1450.60 feet; thence continuing along said southwesterly

boundary line on a curve to the right—radius 429.88 feet—having chord bearing south $38^{\circ} 10'$ east 16.55 feet to its intersection with the northerly line of Pennsylvania Avenue; thence along said northerly line north $89^{\circ} 56'$ west 926.00 feet to the point of beginning of the above description and containing 12.06 acres more or less.

“3. Commencing at a point on the south boundary line of lot 5 of the ‘Box Spring Orange Tract,’ the same being a subdivision of the north half of Lot “A” as shown on a map of the subdivision of section 30 township 2 south, range 4 west, S. B. B. & M., as filed in book 1, records of surveys, at page 32 thereof, records of Riverside County, California 80 feet measured at right angles from the easterly boundary line of the right of way of the Gage Canal; thence running east along said south boundary line of said lot 5, a distance of 80 feet; thence running south and at right angles 60 feet; thence running west and parallel to the said south boundary line of lot 5 to a point measured 80 feet easterly and at right angles from the said easterly boundary line of said right of way of said canal; thence running northerly and parallel with the easterly boundary line of said right of way of said canal to the point of beginning.

“Also a right of way for a ten-inch steel pipe line from the above described lot easterly to the easterly boundary line of said section 30, township 2 south, range 4 west; said pipe line to be laid parallel and ten feet south of said south boundary line of said lot 5 of the ‘Box Spring Orange Tract,’ also in said County of Riverside; together with the right to enter upon said premises for the purpose of constructing, repairing and renewing said pipe and pipe line.

“4. The right and easement in that certain canal known as the Gage Canal, lying and being in the counties of San Bernardino and Riverside aforesaid, to turn and receive into, carry, conduct and flow therein and there through, and to take out of and remove therefrom one hundred and twenty (120) miner’s inches, measured under a 4-inch pressure, of the second party’s water, measured at the point where the same is turned into the canal, and to be delivered therefrom less its due proportion of seepage and evaporation; the said right and easement to be exercised only at, in, through and from that portion of the said Gage Canal situate in the said County of Riverside and which commences at or about the south line of Center Street, (said point being approximately the northeast corner of the south one-half ($S. \frac{1}{2}$) of the northwest quarter ($N.W. \frac{1}{4}$) of section eight (8), and thence extending along the line and course of said canal down to, and terminating at, the center line of Pennsylvania Avenue, (said last mentioned line being the south line of the northeast quarter ($N.E. \frac{1}{4}$) of section thirty (30)), and both said points of commencement and termination being located in township two (2) south, range four (4) west, San Bernardino base and meridian; the said right and easement being a portion of the right, easement and capacity in the

said canal reserved by The Riverside Trust Company, Limited, a corporation, in and by its certain contract with The Gage Canal Company, a corporation, dated March 17, 1910, and recorded in book 354 of deeds, page 347, county records of said Riverside County, and which reserved right, easement and capacity by mesme conveyance has passed to and become the property of the party of the first part hereto.

“And for the same consideration the party of the first part does hereby remise, release and forever quitclaim unto the party of the second part, its sucesors and assigns, all those pieces and parcels of real property situate in the County of Riverside aforesaid and particularly described as follows, to wit:

“Commencing at the northwest corner of section 29, township 2 south, range 4 west, S. B. M.; thence south along the west boundary line of said section 29, said west line being the center line of Canyon Crest Road, to a point on said center line 712.00 feet south from the point of intersection of the center lines of Pennsylvania Avenue and Canyon Crest Road, thence north $89^{\circ} 43'$ east 593.25 feet; thence south $68^{\circ} 35'$ east 84.50 feet; thence south $55^{\circ} 41'$ east 73 feet; thence north $89^{\circ} 58'$ east 214.30 feet; thence north $38^{\circ} 24'$ east 260.95 feet; thence north $79^{\circ} 56'$ east 50.00 feet to its intersection with the center line of the Box Springs Canyon Road; thence in a southeasterly direction along the center line of said Box Springs Canyon Road to its intersection with the easterly boundary line of the west half of the west half of said section 29; thence northerly along said easterly boundary line to its intersection with the northeasterly boundary line of the Box Springs Canyon Road; thence in a northwesterly direction along the northeasterly boundary line of Box Springs Canyon Road to its intersection with the easterly line of the Canyon Crest Road; thence northerly 1406.71 feet along the easterly boundary line of said Canyon Crest Road to its intersection with the northerly boundary line of said section 29; thence westerly 30 feet along the said northerly boundary line to the northwest corner of said section 29 and point of beginning of above description.

“Also all that certain piece or parcel of land situate in the County of Riverside, State of California, and comprising that portion of the east half of the southwest quarter and the west half of the southeast quarter of section 29, township 2 south, range 4 west, S. B. M., which lies northerly and easterly of the Box Springs Canyon Road and is more particularly described as follows, to wit:

“Commencing at the point of intersection of the center line of the Box Springs Canyon Road with the boundary line between the east and west halves of the southwest quarter of said section, and running thence northerly along said boundary line to its intersection with the northerly boundary line of the south half of said section 29; thence easterly along said northerly boundary line 2643.15 feet to the intersection of said northerly

boundary line with the boundary line between the west and east halves of the southeast quarter of said section 29; thence southerly along said easterly boundary line between the east and west halves of said quarter section to its intersection with the center line of Box Springs Canyon Road; thence in a general northwesterly direction along the center line of said Box Springs Canyon Road with its variations in direction to the point of commencement; containing one hundred twenty-four and 90/100 (124.90) acres, more or less, exclusive of the portion within the limits of said Box Springs Canyon Road. . . .

“And the party of the first part for itself and its successors hereby covenants and agrees to and with the party of the second part and its successors that so long only as said party of the second part uses the right and easement in said Gage Canal, hereby granted and hereinabove described, for the sole use and purpose of flowing water to the extent above mentioned through said portion of said Gage Canal to and for the use of said Experimental Station, and for no other use or purpose whatsoever, the said right and easement shall be freed, clear and discharged of and from any liability on the part of the party of the second part and its successors to pay or discharge any portion of the cost of taxes, upkeep, maintenance, repair or administration of said Gage Canal.

“And by its acceptance of this indenture the said party of the second part, for itself, its successors and assigns, covenants and agrees to and with the party of the first part hereto, but for the benefit and advantage of all persons at any time hereafter entitled to the use of said Gage Canal for the flowage of water therethrough, and liable to pay or discharge any portion of the cost of taxes, upkeep, maintenance, repair or administration thereof, that in the event said second party, its successors or assigns, shall at any time hereafter use the right and easement in said canal, hereby granted and hereinabove described, for any use or purpose other than for flowing water therethrough to the extent above mentioned for the use and benefit of the said Experimental Station, it and they shall and will pay to such person or persons as may pay and discharge the cost of taxes, or upkeep, or maintenance, or repair, or administration of said canal the due proportion thereof proportionately chargeable to and on account of the use of said canal by the said party of the second part, its successors or assigns; and further that the due observance and faithful performance of this covenant is and shall be a condition upon which the right of the second party, its successors or assigns, to use the right and easement in said Gage Canal for any purpose other than the sole use and purpose of flowing water to and for the use of said Experimental Station is hereby granted and upon which the continuance of said use is hereby expressly limited.” . . .

II. Deed from the Orange Lands Investment Company, a corporation:

"THIS INDENTURE, made this 16th day of June, One Thousand Nine Hundred and Fifteen, by and between ORANGE LANDS INVESTMENT COMPANY, a corporation organized and existing under and by virtue of the laws of the State of California, the party of the first part, and THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, a corporation organized and existing under and by virtue of the laws of the State of California, the party of the second part, *witnesseth*:

"That, for and in consideration of the sum of ten dollars to it in hand paid by the party of the second part, the receipt whereof is hereby acknowledged, the party of the first part has granted, bargained and sold, and by these presents does grant, bargain and sell, unto the party of the second part, its successors and assigns forever, all that certain piece or parcel of land situate in the County of Riverside, State of California, and comprising that portion of the east half of the southwest quarter and the west half of the southeast quarter of section twenty-nine (29), township two (2) south, range four (4) west, San Bernardino base and meridian, which lies northerly and easterly of the Box Springs Canyon Road and is more particularly described as follows, to wit:

"Commencing at the point of intersection of the center line of the Box Springs Canyon Road with the boundary line between the east and west halves of the southwest quarter of said section, and running thence northerly along said boundary line to its intersection with the northerly boundary line of the south half of said section 29; thence easterly along said northerly boundary line twenty-six hundred forty-three and $15/100$ (2643.15) feet to the intersection of said northerly boundary line with the boundary line between the west and east halves of the southeast quarter of said section 29; thence southerly along said easterly boundary line between the east and west halves of said quarter section to its intersection with the center line of the Box Springs Canyon Road; thence in a general northwesterly direction, along the center line of said Box Springs Canyon Road with its variations in direction, to the point of commencement; containing one hundred twenty-four and $90/100$ (124.90) acres more or less, exclusive of the portion within the limits of said Box Springs Canyon Road." . . .

III. Deed from Matthew Gage and Jane Gage, his wife:

"THIS INDENTURE, made this 12th day of June, One Thousand Nine Hundred and Fifteen, by and between MATTHEW GAGE AND JANE GAGE, his wife, parties of the first part, and THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, a corporation organized and existing under and by virtue of the laws of the State of California, the party of the second part, *witnesseth*:

“That, for and in consideration of the sum of ten dollars to them in hand paid by the party of the second part, the receipt whereof is hereby acknowledged, the parties of the first part have granted, bargained and sold, and by these presents do grant, bargain and sell unto the party of the second part, its successors and assigns forever, all that certain tract or parcel of land situate in the County of Riverside, State of California, and particularly described as all of the south half of the northeast quarter of section thirty (30), township two (2) south, range four (4) west, San Bernardino base and meridian, containing eighty (80) acres of land more or less.” . . .

IV. Deed from May E. Wilson:

“THIS INDENTURE, made this 15th day of June, 1915, by and between MAY E. WILSON, a widow, party of the first part, and THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, a corporation organized and existing under and by virtue of the laws of the State of California, the party of the second part, *witnesseth*:

“That, for and in consideration of the sum of ten dollars to her in hand paid by the party of the second part, the receipt whereof is hereby acknowledged, the party of the first part has remised, released and quitclaimed, and by these presents does remise, release and quitclaim, unto the party of the second part, its successors and assigns forever, all that certain piece or parcel of land situate in the County of Riverside, State of California, and comprising that portion of the east half of the southwest quarter and the west half of the southeast quarter of section twenty-nine (29), township two (2) south, range four (4) west, San Bernardino base and meridian, which lies northerly and easterly of the Box Springs Canyon Road and is more particularly described as follows, to wit:

“Commencing at the point of intersection of the center line of the Box Springs Canyon Road with the boundary line between the east and west halves of the southwest quarter of said section, and running thence northerly along said boundary line to its intersection with the northerly boundary line of the south half of said section 29; thence easterly along said northerly boundary line twenty-six hundred forty-three and 15/100 (2643.15) feet to the intersection of said northerly boundary line with the boundary line between the west and east halves of the southeast quarter of said section 29; thence southerly along said easterly boundary line between the east and west halves of said quarter section to its intersection with the center line of the Box Springs Canyon Road; thence in a general northwesterly direction, along the center line of said Box Springs Canyon Road with its variations in direction, to the point of commencement; containing one hundred twenty-four and 90/100 (124.90) acres more or less, exclusive of the portion within the limits of said Box Springs Canyon Road.” . . .

V. Deed from May E. Wilson :

"THIS INDENTURE, made this 15th day of June, One Thousand Nine Hundred and Fifteen, by and between MAY E. WILSON, a widow, the party of the first part, and THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, a corporation organized and existing under and by virtue of the laws of the State of California, the party of the second part, *witnesseth* :

"That, for and in consideration of the sum of ten dollars to her in hand paid by the party of the second part, the receipt whereof is hereby acknowledged, the party of the first part has granted, bargained and sold, and by these presents does grant, bargain and sell unto said party of the second part, and to its successors and assigns forever, all that certain piece or parcel of land situate in the County of Riverside, State of California, in the northwest quarter of the southwest quarter of section twenty-nine (29), township two (2) south, range four (4) west, San Bernardino base and meridian, and particularly described as follows to wit :

"Commencing at the point of intersection of the westerly line of said section, said line being also the center line of Canyon Crest Road, with the center line of Pennsylvania Avenue, and running thence due south along the center line of said Canyon Crest Road a distance of seven hundred and twelve (712) feet more or less to a point directly opposite a point on the easterly line of said Canyon Crest Road and distant thereon six hundred eighty-two (682) feet southerly from the intersection thereof with the southerly line of said Pennsylvania Avenue; thence at right angles easterly thirty (30) feet to said last mentioned point on the easterly line of said Canyon Crest Road; thence north $89^{\circ} 43'$ east five hundred sixty-three and $25/100$ (563.25) feet; thence south $68^{\circ} 35'$ east eighty-four and $50/100$ (84.50) feet; thence south $55^{\circ} 41'$ east seventy-three (73) feet; thence north $89^{\circ} 58'$ east two hundred fourteen and $30/100$ (214.30) feet; thence north $38^{\circ} 24'$ east two hundred sixty and $55/100$ (260.55) feet to a point on the southwesterly line of Box Springs Canyon Road as formerly located; thence northeasterly, at right angles to said southwesterly line, to the southwesterly line of Box Springs Canyon Road as now located; thence northeasterly, at right angles to said southwesterly line of Box Springs Canyon Road as at present located, to the center line of said road as at present located; thence northwesterly along the center line of said road to its intersection with the center line of Pennsylvania Avenue; thence westerly, along the center line of Pennsylvania Avenue to the point of commencement; containing, exclusive of the portion in roads, sixteen and $77/100$ (16.77) acres more or less. . . .

"To have and to hold all and singular the said premises, together with the appurtenances, unto the said party of the second part, and to its successors and assigns forever, subject to the existing rights of way for the Box Springs Canyon Road, Canyon Crest Road, and Pennsylvania Avenue." . . .

Sale of Yuba County Land:

On February 8, 1916, sale was authorized to Cline Bull at \$1400 of eighty acres of land in Yuba County, being the south half of the southwest quarter of Section 20, Township 14 North, Range 4 East, M. D. B. & M.

Whitaker Heirs Lose Suit:

On March 14, 1916, it was reported to the Regents that the heirs of Horace Whitaker who had brought suit to obtain possession of Whitaker's Forest, bequeathed to the University of California by the late Horace Whitaker, had lost their suit. The Regents passed a vote of thanks to Mr. James M. Burke and the firm of Lamberson, Burke, and Lamberson of Visalia for their generosity in conducting this litigation without fee from the Regents.

Custodian for Whitaker's Forest:

On March 14, 1916, the following recommendation of the Finance Committee was approved and confirmed:

"That the action of the Finance Committee be approved in having requested the United States Bureau of Forestry to authorize its Forest Ranger within whose district Whitaker's Forest lies to act as Custodian for Whitaker's Forest."

The United States Bureau of Forestry very kindly acceded to this request of the Regents, and at a meeting of the Regents on April 11, 1916, Mr. Albert E. Redstone was appointed Custodian for Whitaker's Forest.

Rules for Whitaker's Forest:

On March 14, 1916, the Regents adopted anew rules and regulations for Whitaker's Forest by adopting the following resolutions:

Resolved, That the following rules be and they are hereby adopted for Whitaker's Forest:

1. Whitaker's Forest shall be held in its present condition for forestry investigation and research connected with that branch of instruction as taught in the University of California, and shall be preserved and continued as a park and pleasure resort for the people of California.

2. No whiskey or other intoxicating liquors shall ever be sold or dispensed on said premises.

3. Whitaker's Forest shall be open to well behaved persons for use as a public park for campers, without charge for said use for camping purposes, subject to such regulations as may be made by The Regents of the University of California governing persons while camped on said Whitaker's Forest.

4. Whitaker's Forest shall not be used for a stock range, but campers may keep thereon the necessary stock for their camping purposes.

5. No Sequoia or Redwood trees growing or that may grow on said premises shall be felled or cut down.

6. The lands hereinabove described shall be known as and called "Whitaker's Forest."

The Comptroller was authorized to have the foregoing resolutions posted in Whitaker's Forest.

Endowment Pool:

On September 14, 1915, it was reported to the Regents that the Endowment Pool rate for the year ending June 30, 1915, was 5.7101.

The Administration of Endowments:

A revised plan for the administration of the endowment funds and the current moneys of the University was adopted by the Regents on May 9, 1916, through approval of the following recommendation of the Finance Committee:

"1. The Treasurer of the University shall keep separate and distinct from all other moneys those moneys which are available for expenditure for the salaries and expenses of the University. This account shall be known as the 'Current Expense' account, and shall include moneys appropriated by the United States government, by the State of California, and all income from endowments and gifts for current use. The Treasurer shall also keep in separate and distinct accounts the various endowment funds that are on hand, under such headings as shall be decided upon by the Regents. The daily report of the Treasurer shall indicate the amounts available in all these various funds.

"2. The Regents shall use for their current expenses and for their working capital only such moneys as are available in the 'Current Expense' account. No trust funds, under any circum-

stances, shall be used for the running expenses of the University. If at any time there are not sufficient funds on hand in the 'Current Expense' account for the daily needs, the Regents shall borrow for the 'Current Expense' account a sufficient sum, at an interest rate to be agreed upon between the Treasurer and the Finance Committee.

"3. The Consolidated Perpetual Endowment Fund shall contain the proceeds from the following grants:

The Public Building Land Grant of 1853,
The Tide Land Act of 1870,
The Diverted Funds,
The Seminary Grant of 1853,
The Brayton Property.

This fund shall be kept separate and distinct from all other funds and shall be invested in such manner as the Regents shall designate.

"4. The Congressional Grant of 1862 shall be kept as a separate fund, to be known as the Federal Endowment Pool, and shall be invested in safe stocks and bonds.

"5. Of the remaining funds now held in the Consolidated Perpetual Endowment Fund, all shall be included in the General Endowment Pool, described hereafter, except the following:

"(a) Surplus of income of previous years, amounting to \$209,962.26, shall be devoted first to paying off of the present deficit of the Regents, amounting to \$184,312.68. The balance left of this fund, after the deficit has been wiped off, should be carried as a capital account, to be invested with the other funds of the Endowment Pool.

"(b) Increased valuation of the Johnson Building, \$35,987, and increased valuation of the Sacramento Building, \$47,938, should be wiped off the books.

"6. There shall be organized a General Endowment Pool, which shall be made up of the cash donations to the Regents of the University which are held by them permanently in trust for the various uses of the University. The following rules shall govern the General Endowment Pool:

"(a) The General Endowment Pool shall be made up of the permanent endowments of the University of California which may be so pooled without in any manner involving a legal or moral question.

"(b) No funds shall be placed in the Endowment Pool except cash donations to the Regents or cash which is received from actual sales of donations to the Regents in the form of real estate, securities, or other investments.

“(c) When any endowments are included in the Pool, it shall be specifically understood with the donors, or with the trustees of the donors, that the Regents do not guarantee their funds against loss other than as such guarantee may be made in the Organic Act and that all endowments, wherever entered, shall have a pro rata share in the account known as ‘Losses and Gains in the Endowment Pool,’ whether that account shall show a loss or a gain at any specified time.

“(d) The ‘Losses and Gains in the Endowment Pool’ is a fund which is the result only of capital increases or decreases due to the disposing of investments made with the funds of the General Endowment Pool. This account shall remain always intact, to act as a reserve, and it shall bear no interest, but whatever interest it might, as a fund, have earned, shall be pro-rated among the other funds invested in the General Endowment Pool.

“(e) The funds of the General Endowment Pool shall be kept separate and apart from all other funds of the University and shall be invested by the Regents in their discretion and shall be kept invested to the fullest degree possible. All uninvested funds must be kept on hand in cash by the Treasurer, who shall allow the General Endowment Pool a daily balance for such funds.

“7. The internal bookkeeping by which the funds of the General Endowment Pool shall be administered shall be left in the hands of the Comptroller.

“8. Of the funds which were on hand December 31, 1915, the following classes shall be included in the General Endowment Pool under the divisions specified:

“(a) Endowments for the benefit of the University at large, or for designated departments.

University Endowment. (This fund shall be the total of all funds taken from the Consolidated Perpetual Endowment Fund after the Regents have deducted sufficient to care for deficits. The old names shall be abandoned and the whole sum lumped as University Endowment.)

“(b) Endowments founding professorships, fellowships, prizes, etc.

“(c) Endowments for the purchase of Library books.

“(d) Endowments establishing loan funds for students, etc. (Amounts to depend on loans made.)

“9. The following funds, formerly contained in the Endowment Pool, shall be held as separate and specific investments:

Lick Observatory Fund	\$90,018.16
Wilmerding Fund	449,000.00
P. Charles Cole Scholarship	2,671.11
Carrie M. Jones Scholarships	100,000.00

“10. Portions of the following funds shall also be kept as separate and distinct investments:

Cora Jane Flood, John W. Mackay, Jr.,
James M. Goewey Scholarship.

“11. All other funds of the Regents which are not included in the Consolidated Endowment Fund or the General Endowment Pool or the special Endowment Pools which may be created from time to time shall be held as separate and distinct trusts which must be invested strictly in accordance with the terms of their gifts.”

Loans on Collateral Security:

On January 11, 1916, authority was granted to the Finance Committee to make loans on collateral security during 1916.

Budget for 1916-17:

On April 11, 1916, the Regents adopted a budget for 1916-17 contemplating the expenditure of \$2,565,975.96 for the following purposes:

Salaries	\$1,229,636.96	
Departmental budgets	770,450.00	
Administrative budgets	299,766.00	\$2,299,852.96
<hr/>		
Special improvements	\$90,518.00	
Special purposes, including scholarships..	165,608.00	
Expenditure of the income of special		
funds	9,997.00	266,123.00
<hr/>		
		\$2,565,975.96

Resignation of Treasurer Hellman:

On April 11, 1916, it was reported to the Regents that the following letter, addressed to the Regents had been received from Treasurer I. W. Hellman, Jr.:

“Enclosed please find copy of letter which I have this day mailed to His Excellency, the Governor of the State of California, and ex officio President of your honorable body, and I desire to add again my thanks for your courteous treatment and for the honor which you have many years ago conferred on me.”

Treasurer Hellman's letter to Governor Johnson was as follows:

“San Francisco, California,
“March 27, 1916.

“Honorable Hiram W. Johnson,
“Governor of the State of California and
“Ex officio President of the Board of Regents,
“University of California,
“Sacramento, California.

“Dear Sir:

“I have had the honor of being Treasurer of the Board of Regents of the University of California since February, 1903, and believe I have fully performed the many responsible duties connected with that office.

“I am leaving for New York tonight and will return in about four weeks, and I take this occasion to leave my resignation in your hands to be used by you when the Board of Regents of the University of California have decided upon a successor. I do not desire to hurry the Board of Regents in their choice, but should my successor be elected during my absence, I have instructed the Union Trust Company of San Francisco, who will carry on the business of the Treasurer's office during my absence, as they have done whenever I was out of the State, to turn over all the properties and funds belonging to the office, to him.

“I desire in this connection to express to you and to the Board of Regents of the University of California my thanks for the many courtesies extended to me while holding the office.

“Any communications addressed to me care of the Union Trust Company of San Francisco will be forwarded.

“Very respectfully,

“(Signed) I. W. HELLMAN, JR.,
“Treasurer.”

The resignation was accepted and Mr. Mortimer Fleishhacker was appointed by the Board Treasurer of the Regents. Mr. Fleishhacker filed his bond for \$250,000 and assumed office on April 18, 1916.

On May 9, 1916, the Regents accepted his qualification and confirmed his acts as Treasurer since their meeting of April 11, 1916.

Office in Los Angeles:

On December 14, 1915, it was approved by the Regents that rental be paid by the University at the rate of \$9 per month for use in common with the State Board of Education of a room in the new State Building in Los Angeles, the University having

contributed \$121 toward the cost of furnishing and equipping the room.

Hilgard Annuity Agreement:

On June 13, 1916, the following recommendation of the Finance Committee was approved by the Regents, providing for an annuity agreement with the daughters of the late Professor E. W. Hilgard:

“That the President and Secretary of the Board be authorized and instructed to enter into a written agreement with Alice Hilgard and Louise Hilgard, providing that the University will pay \$200 a month to said Alice Hilgard and Louise Hilgard jointly so long as both shall survive, and \$200 a month thereafter to the survivor, so long as the life of the survivor shall continue, and permit them also use, rent free, with the right of subletting, of the Hilgard family home at 2728 Bancroft way, Berkeley, in consideration of the conveyance to The Regents of the University of California by said Alice Hilgard and Louise Hilgard of \$10,000, and of real estate described as follows:

“All of lot 29 and the easterly 3 feet of lot 28 in block lettered ‘D,’ Berkeley Property, as said lots and block are delineated and so designated on that certain map entitled ‘Map of Berkeley Property, etc.,’ recorded in Liber 1 of Maps, page 167, Records of Alameda County, except that portion used for the extension of Durant Avenue.

“The real estate in question is 103 feet on Bancroft way, running through approximately 290 feet to Durant avenue, with a frontage of approximately 103 feet on Durant avenue.”

Assistant to the Comptroller:

On September 14, 1915, the Regents adopted the following new Section 29 for the Standing Orders of the Board:

When so instructed by the Comptroller, the Assistant to the Comptroller shall be empowered to act for the Comptroller. The Assistant to the Comptroller shall in the business office have the powers and duties of office manager and shall perform such detail work as shall be assigned to him by the Comptroller. When so instructed by the Comptroller the Assistant to the Comptroller shall be empowered to act for the Comptroller, signing drafts, vouchers, requisitions and other papers requiring the signature of the Comptroller.

Bear Gulch Water Company:

On December 14, 1915, it was reported that the Railroad Commission, in a decision on the affairs of the Bear Gulch Water Company (four-fifths of the stock of which is owned by the Regents, through the gift of Miss Cora Jane Flood for the endowment of the College of Commerce) had declared the quality of the water good, had reduced the minimum rate for three-quarter inch service from \$2 to \$1, but had allowed an increase in the rates of the minimum of service one inch and larger, and also had allowed an increase in the rates based on usage per thousand gallons, thus increasing the income of the Bear Gulch Water Company about twenty-five per cent per annum. Attorney Olney reported that the decision of the Railroad Commission was almost entirely due to the manner in which the University management had taken hold of the complaints of consumers. Regent Guy C. Earl is President and Comptroller Ralph P. Merritt is General Manager of the company.

Country Club Heights Company Contract:

On November 9, 1915, it was reported to the Regents that the Country Club Heights Company, under its contract for the purchase of the Broadway Terrace Tract, had already paid in \$55,450, and that the balance due was \$15,225, secured by property the release prices on which total approximately \$49,000. It was therefore voted that all interest due from March 1, 1914, to November 9, 1915, be waived; that amounts to be received as release payments on lots be applied toward the settlement of installments of the principal, instead of being pro-rated against the last installments, and that releases to the amount of \$15,000 be granted as of date October 1, 1915, without any cash payments.

Quitclaim to the Country Club Heights Company:

On November 9, 1915, the Regents authorized a quitclaim deed to the Country Club Heights Company for the northerly eighteen feet of Lot 20 and the southerly twenty-three feet of Lot 21, in Block "F" of the Broadway Terrace Tract.

Lease to Frank Carson:

On December 14, 1915, the Regents approved a lease to Frank Carson for five years of the south half of the north half, the north half of the southeast quarter, and the southeast quarter of the southeast quarter of Section 3, Township 25 South, Range 18 East, M. D. B. & M., and authorized a right of way for a ditch across this property. The lease provided for a rental at the rate of ten cents per acre per annum for the first year, twenty-five cents for the second and third years, and fifty cents for the fourth and fifth years. The lessee was required within ninety days to enclose the lands with a fence sufficient to turn stock, save where these lands adjoin his own lands, if such omission do not leave the lands open to trespass or grazing; required to sink, within the first year of the lease, a ten-inch well at such point as should be most advantageous for the proper irrigation of the lands, and to use his best efforts to develop a good supply of water in such well or wells for irrigating purposes, and to use no water developed on the University's land to irrigate other lands; to sow alfalfa on eighty acres, and before the expiration of the fourth year at least forty additional acres; forbidden to pasture livestock on the alfalfa lands; and given an option for renewal for an additional five years at an annual rental of one dollar an acre, with right of sale reserved to the Regents. A right of way for a ditch was also granted by the Regents, subject to various limitations.

Lease for Hog Serum Laboratory Site:

On February 8, 1916, renewal was approved for three years from September 20, 1918, of the lease from Louis Schaffer to the Regents for the site of the Hog Serum Laboratory in Oakland.

Bureau of Sanitary Engineering:

On December 14, 1915, the Regents approved an agreement with the State Board of Health regarding the location of the Bureau of Sanitary Engineering of the State Bureau of Health on the campus at Berkeley and its use of certain quarters and apparatus under mutually helpful terms.

Bonding Company and Bank Make Good Defalcation:

On August 10, 1915, it was reported to the Regents that the Fidelity and Deposit Company of Maryland had paid to the Regents its full liability of \$10,000, the amount of its bond for H. L. Wright, defaulting Cashier in the Comptroller's Office. On March 14, 1916, it was reported that the Berkeley National Bank, against which the Regents had made a claim in the matter of the Wright defalcation because of the action of certain employees of the bank in antedating certain deposit tags at the request of H. L. Wright, had now made a payment—the amount was \$4381—so that now the amount of the Wright defalcation had been made good.

Agreement with Fresno Canal and Irrigation Company:

On August 10, 1915, the Regents approved the following agreement with the Fresno Canal and Irrigation Company:

“THIS AGREEMENT, made and entered into this 3rd day of June, 1915, by and between THE FRESNO CANAL AND IRRIGATION COMPANY, a corporation, the party of the first part, and THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, a corporation, the party of the second part,

“*Witnesseth:* That the said party of the first part, for and in consideration of the payments to be made to it by the party of the second part, in the amounts and at the times hereinafter specified, hereby agrees to and with the said party of the second part to take over, assume full control of, maintain and keep in repair, and be responsible for any damage caused by (except such damage as may be caused by acts of the party of the second part or its lessees) that portion of what is known as the Teilman Ditch, the same being a lateral ditch running from the canal of the party of the first part, and running to the lands of the party of the second part, and described as follows:

“Commencing at Whites Bridge Road on the east line of section twelve (12) in township fourteen (14) south of range nineteen (19) east, Mount Diablo Base and Meridian, and running thence south one-half ($\frac{1}{2}$) mile, thence west one-half ($\frac{1}{2}$) mile to a point west of the ditch running south on the west line of Valentine Avenue.

“Provided, however, that the said party of the second part may and shall retain all the rights which it now has, enjoys and exercises in and to the use of the water flowing in said lateral ditch, and used by the party of the second part in the irrigation of its lands, and may continue to divert water therefrom for the purpose of irrigating its lands, whether farmed by itself or its lessees, consistent with the terms of the water

right agreement now existing between the parties hereto, and in accordance with the rules and regulations of the Railroad Commission of the State of California.

“The said party of the second part in consideration of the premises, agrees to pay to the party of the first part, the sum of \$150.00 per annum, payable on the first day of September of each year from and after the date of this agreement.

“It is further agreed that this agreement shall run with and form a part of that certain water right agreement heretofore entered into between the parties hereto, and which said water right agreement is appurtenant to the lands of the said party of the second part to which said portion of said ditch runs, as aforesaid, and that the term of this agreement shall be co-extensive with the term of said water right agreement.”

Raisin Crop for the Kearney Vineyard:

On December 14, 1915, it was reported to the Regents that the raisin crop of the Kearney Vineyard for 1915, grown on 698 acres, was 996.5 tons, as compared with 835 tons in 1914, and as compared with 700 tons, the maximum yield ever produced on the Kearney Estate at a time when the acreage of raisin vineyard was approximately a thousand acres.

Raisin Contract:

On February 8, 1916, a contract was authorized for two years with the Associated Raisin Company for the raisin crop of the Kearney Vineyard—the 5400-acre estate near Fresno bequeathed to the University by Mr. M. Theo. Kearney.

Oxford Street Property Acquired:

On August 10, 1915, the purchase was approved and confirmed from John Freuler and Amelia A. Freuler, at a cost of \$20,812.50, of property at the southwest corner of University avenue and Oxford street, 138 feet 6 inches on Oxford street, by 45 feet 10 inches on University avenue, this as an investment of moneys of the Endowment Pool. The deed passed from John Freuler and Amelia A. Freuler, his wife, to R. J. Graham and L. H. Graham, and from them to The Regents of the University of California.

Colin Cemetery Lot Quitclaimed:

On November 9, 1915, deed was authorized by the Regents to M. F. Fitzsimmons for any claim which the University might have as residuary legatee under the will of Mme. Therese F. Colin for Lot 989 in the Hillside Cemetery in Redlands.

University Investment Company Agreement:

On October 12, 1915, permission was granted to the University Investment Company to defer for five years and three months beyond the time specified in the existing agreement the date for beginning construction of the new building on the property at Fourteenth and Washington streets, Oakland, leased to the company by the Regents.

On December 14, 1915, the Regents approved an agreement with the University Investment Company whereby the foregoing arrangement was effected through the substitution for one clause of the agreement of the following new clause:

“As further consideration for said lease, the lessee covenants and agrees that on or before February first, 1923, it will commence the construction of a new store and office building on said demised premises in place of the building now thereon and will complete the construction thereof, ready for occupancy by tenants, on or before the first day of February, 1924.”

The Regents also approved a supplementary agreement with the University Investment Company concerning the guarantees for payment of rent for this property, waiving signature by the Crown Investment Company to guarantee this agreement.

State Highway Use of University Farm Land:

On September 14, 1915, the Regents granted a right of way to the State for the State Highway over a corner of the University Farm at Davis, in order that convenient arrangement might be made for crossing under the tracks of the Southern Pacific railroad by a subway. The 52/100 of an acre needed for this right of way was conveyed to the State by the following right of way deed:

“Know All Men by these Presents: That the Regents of the University of California, the undersigned, owners of the land hereinafter described, in consideration of the location and establishment of a State Highway to be constructed under the provisions of the ‘State Highways Act’ of the State of California, approved March 22, 1909, over said land, and the benefits to accrue to them thereby, they do hereby signify their approval of the location of said State Highway and do consent to the establishment thereof over said land and do hereby grant and convey to the State of California the right of way and incidents thereto for said State Highway over and across the following described lands and premises, lying and being in the County of Yolo, State of California, and more particularly described as follows, to wit: a portion of the N. $\frac{1}{2}$ of Sec. 15, T. 8 N., R. 2 E., M. D. B. & M.

“The right of way herein conveyed for State Highway being described as follows:

“Commencing at a point on the westerly right of way line of the Southern Pacific R. R. distant westerly 50 feet at right angles from the center of the said railroad right of way and bearing S. $55^{\circ} 04'$ E. 316.4 feet from the intersection of the center lines of Laurel Street and Front Street of the town of Davis, said point being designated as Engineer’s Station 94+40.5 of the California Highway Commission survey; thence N. $34^{\circ} 56'$ E. 40 feet along the said westerly right of way line of the said Southern Pacific R. R.; thence N. $55^{\circ} 04'$ W. 225.7 feet to the southerly line of Front Street of said town of Davis; thence S. $77^{\circ} 19'$ W. 223.1 feet along the southerly line of said Front Street; thence southeasterly along a curve to the right with a radius of 260 feet for 216.06 feet; thence S. $55^{\circ} 04'$ E. 184.0 feet to the aforesaid westerly right of way line of the Southern Pacific R. R.; thence N. $34^{\circ} 56'$ E. 40 feet to the point of commencement.

“The right of way herein conveyed contains 0.52 acre more or less, and they hereby waive all claim for damage or compensation for and on account of the establishment of said State Highway.”

Sale of the Richardson Lots:

On September 14, 1915, execution was authorized of a deed for the conveyance to Katherine H. Roulstone of lots 14 and 15 in Block 1 of the “Highlands,” Berkeley, property bequeathed to the University by the late George Morey Richardson as endowment for the Richardson Latin Translation Prize, the agreement for the sale of this property to Mrs. Roulstone at \$1600 having been approved by the Regents on August 8, 1911, and payment now having been completed.

Degrees, Scholarships, and Military Commissions:

For a complete list of the degrees conferred on December 20, 1915, and May 15, 1916, and of the recipients of scholarships and military commissions for 1915-16, see the Commencement Programme of May, 1916.

University Medal:

On June 13, 1916, the Regents approved the award of the University Medal to Miss Kathleen Harnett, a graduate of 1916 of the College of Letters and Science, with honorable mention for Robert Willard Hodgson, '16, of the College of Agriculture.

Gifts to the University:

See pages 289 to 320 for lists of gifts to the University during the year 1915-16.

SUMMER SESSION

BERKELEY, July 1, 1916.

To the President of the University,

SIR: In anticipation of an exceptionally large attendance at the Summer Session of 1915 an unusually varied programme was offered. Five thousand three hundred students were enrolled for the entire session. In addition to these regularly enrolled students there was a much larger attendance of casual auditors than in the previous year. For many courses the Panama-Pacific Exposition furnished supplementary educational opportunities of almost equal value to the work of the classroom. Several of the courses that were given in the lecture rooms at Berkeley dealt primarily with the various art, and industrial and educational exhibits of the Exposition.

A significant change in the relation of the Infirmary to the Summer Session was effected this year, resulting in a conspicuous saving to our budget without in any way impairing the efficiency of the Infirmary. Instead of pro-rating at the close of the session one dollar for each student, a definite sum was agreed upon in advance. It is a riskful undertaking, at best, to insure the health of such a miscellaneous company, entering our midst for such a short period. It is almost impossible to safeguard the Infirmary privileges by anything approximating the thorough medical examination of the regular session. However, we felt it greatly worth while to assume the risk and have thus far successfully provided the same medical and hospital care at the Infirmary as is given to our regular students in the fall and spring sessions.

The giving of credit for work done in the Summer Session where we have no formal entrance requirements is beset with many difficulties. The plan of allowing the instructor in charge of a given course to be the judge of the qualifications of the candidate for credit works quite satisfactorily. Credit toward a university degree is given only to attendants who are qualified to do systematic university work and is subject to the requirement that the student shall at some time, by examination or otherwise, make up the formal entrance requirements. The graduate work of the Summer Session has always presented many complicated problems. The students who come at this time for work leading to our higher degrees vary so widely in intellectual capacity and attainment, that it has been difficult and expensive to provide for the many courses which have been demanded of us. However the Dean of the Graduate School has succeeded in working out a very successful plan for assessing the graduate work of the Summer Session and connecting it effectively with the graduate work of the regular sessions.

Respectfully submitted,

C. II. RIEBER,

Dean of the Summer Session.

WILMERDING SCHOOL

SAN FRANCISCO, July 1, 1916.

To the President of the University,

SIR: On January 1, 1915, there was put into operation a plan whereby all boys in attendance at the Lick and Wilmerding Schools are enrolled concurrently in both institutions. On June 2, 1916, sixty-nine boys were granted diplomas of graduation jointly in the names of both schools. This unique experiment, which was explained in detail in my last annual report, has been entirely successful. Each school has continued to maintain a separate faculty, separate buildings, and separate equipments. The character of instruction given in each has been in accordance with the terms of its endowment. There is a Lick School and a Wilmerding School, each having a distinct identity, but there is only one Lick-Wilmerding student body. By avoiding a duplication of equipments and teaching force a considerable economy of maintenance has been effected, but more important has been the saving of time and effort for the student and the widening of his educational opportunities. The number of boys enrolled during the school year 1915-16 was 450.

I regret to have to record the death of Mr. Rufus M. Grant, a member of the Wilmerding staff, which occurred January 29, 1916. Mr. Grant was foreman in charge of our department of carpentry from the establishment of the school, having served as superintendent of construction of the first building.

In 1908 the late Frederick G. Ginn, one of the founders of the publishing house of Ginn & Co., bequeathed a sum of approximately twenty thousand dollars for the care and maintenance of orphan boys in attendance at the Lick and Wilmerding

schools. Afterwards Mrs. Ginn very generously added enough to more than double the original bequest, the additional amount to be used for building and maintaining a dormitory. Both funds were placed in the hands of the trustees of the Lick School to be administered. Under the original bequest five boys have been maintained each year. Until the present time these beneficiaries have been cared for in a home that was built by a citizen of San Francisco for the purpose of befriending these and other boys, but a separate building is now being erected under the Ginn bequest and will be ready for occupancy during the coming November. It is located on a lot having a frontage of one hundred feet on Seventeenth street, opposite the entrance of the Wilmerding School. In addition to its use as a home for the Ginn beneficiaries it will also serve as a dormitory for country boys, and as alumni headquarters. A feminine element will be introduced by having the girls of the Lux School, especially the older girls in the Normal class, participate in the care and management of the place, for practice in housekeeping. The matron will be Mrs. Carrie Dinsmore Howland, a graduate of the Lick School. Having been a teacher of domestic science, and more recently an office employee of the Wilmerding School, and having been most active in the alumni affairs of all three of these schools, Mrs. Howland has a first-hand acquaintance with the many important and interesting problems that this new institution is intended to solve.

Respectfully submitted,

GEO. A. MERRILL,

Director.

DEAN OF WOMEN

BERKELEY, July 1, 1916.

To the President of the University,

SIR: I have the honor to present the following report of the work of the office of the Dean of Women for the year 1915-16.

Through this office during the past year, over seven hundred women entering the University for the first time have been advised in regard to their courses of study, their boarding places and their individual problems. For these new students and for any students of the University who seek the services of the office, office hours have been held daily except Saturday, from nine in the morning until half-past four in the afternoon and on Saturday, from nine until twelve.

In the interest of the general welfare of the women, we have attempted with the Physician for Women and the department of Physical Education to bring about wholesome conditions of student life. We have encouraged reasonable schedules for study and outdoor exercise. The students themselves have made a beginning, through their point system, at distributing the responsibility for student government and for so-called campus activities.

The Assistant Dean of Women has inspected boarding and lodging accommodations offered for women, both in the fall and spring sessions, making in all four hundred and fifty visits. She has inspected seventy-seven homes for self-supporting women and interviewed one hundred and twenty-seven employers. She has inspected the living conditions in twenty-four clubs and sororities and made recommendations to the management of each house, pending re-inspection.

In co-operation with the department of Hygiene and the Physician for Women, rest rooms for women on the campus have

been inspected and suggestions made to the administration for improvements. The sources of the food supplied on the campus have been investigated and steps taken to secure proper sanitation.

In this connection, I must call your attention to the inadequate quarters in the basement of North Hall where the Counter under student management is patronized daily by not less than three hundred women. I must note that the cloak room in the library, ill-adapted in every respect to the uses of a lunch-room, is so used. The inadequacy of all the available space, including Hearst Hall, for the decent preparing and serving of luncheon for our large body of commuting students points to the striking need of a building which will house among other student interests, good food for large numbers at reasonable prices.

In the interest of scholarship and student government, representatives from the twenty-four clubs and sororities have met me at least once during each term. Eighteen of the larger boarding houses have attempted to organize student government leagues within each house and representatives from these groups have also had special conferences with me. The committees of twenty-four graduate advisors and one hundred senior advisors have been organized as usual for the year. The senior advisors have reported to me at least once during each session on the progress of the freshmen in their charge.

The office has been able through its student employment bureau, presided over by the Assistant Dean of Women, to help self-supporting women by placing two hundred and eighteen women to earn room and board or cash wages. By means of four loan funds, two handled through this office by student committees, one used at my discretion and one managed by the Association of Collegiate Alumnae, twenty-seven women have been aided in emergency.

It is gratifying to this office that the success of the committee of senior advisors and the student employment bureau has been recognized by the adoption within the last year of similar methods for helping the men.

Other groups or individuals asking support or guidance have been reached through conferences. All student meetings and

committees where our presence has been desired have been attended by either Mrs. Davidson or myself. We have tried not to let slip any natural means of meeting and knowing the women of the University.

In addition to this work of supervision shared by Mrs. Davidson, Assistant Dean of Women, our secretary, and the women students themselves, I have served on five standing committees of the University. During the second semester, I have also conducted a class in Social Economics, meeting three times a week.

As an advisor to University women, I have long been conscious of the demand for a concrete result from a college education. The demand comes from the public and from the students themselves. It is no longer satisfying to declare to the student, man or woman, that college is the place in which to learn to think straight and to build character. The high-minded student of today wants thought and character definitely directed to some serviceable activity by which life in reasonable comfort may be supported and the general welfare advanced. As far as the women students are concerned, we face the fact that the majority who graduate from this University hope to become self-supporting as the result of their college training. Teaching has been the traditional and accepted means of self-support for all college women. The teaching field is not only overcrowded, but candidates for positions are often ill-adapted by inclination and personality to the work. More and more frequently young women say to me: "We do not want to teach and we must earn our living. What can we do?" It has therefore fallen within my province as advisor to inquire what the University of California is doing in its different departments to train women for vocations other than teaching.

No inquiry was addressed to the schools of Law, Medicine, Public Health and Architecture, wherein it is understood six or seven years training fits the student for a given profession. My object was rather to discover whither undergraduate study in a chosen department might lead the woman looking for equipment for self-support.

To thirty-seven departments of the University were sent the following questions:

1. To what fields of paid work for women other than teaching does training in your department lead?
2. What courses should be pursued by the student who wishes to equip herself for any one of these fields?
3. How many years of graduate or professional work is required in each case?
4. What are the opportunities for advancement and the salaries paid?

Answers were received from thirty-three departments. Sixteen, including the departments of Languages, English and History, claimed to lead to no opening for paid work other than teaching. It remains, however, unchallenged, that training in these departments is indispensable to any curriculum.

From seventeen departments came fifty-three suggestions for training leading to different kinds of work. As was to be expected, the College of Agriculture, the departments of Economics and Home Economics offered the greatest number of opportunities. The departments of Natural Science, however, were not far behind and many departments showed a keen desire not only to broaden the field of women's work but to utilize the skill and painstaking ability of women. The duration of training for these fifty-three vocations varied from two years of special undergraduate study to three years of graduate study. There was no hint from any quarter that the so-called cultural subjects, hitherto considered the backbone of a college education, could be advantageously slighted or that early specialization was required. The probable salaries varied from five hundred dollars to three thousand dollars. Advancement was dependent on the usual factors of experience, proficiency and further study.

The following is a list of the opportunities named by the different departments:

AGRICULTURE.

1. Supervisor in rural schools.
2. Scientific assistant in government service.
 - a. Testing seeds.
 - b. Compiling data.
 - c. Laboratory experimental work.

3. Expert technician—employed in government service at experiment stations.
 - a. Entomology.
 - b. Plant pathology.
4. Landscape gardener.
 - a. Florist.
 - b. Nurseryman.
5. General farmer.

ANATOMY.

1. Laboratory assistant.
 - a. Expert care of animals.
 - b. Microscopic technique.
 - c. Scientific illustrator.

CHEMISTRY.

1. Manufacturing chemist or analyst.
2. Assistant in government laboratories.

DENTISTRY.

1. Graduate assistant in office of general practitioner.
2. Institutional practitioner in public schools, dental clinics, etc.
3. Research worker.
4. Dental specialist, children's work, etc.

DRAWING.

1. Designer.

ECONOMICS.

1. Secretary.
2. Accountant.
3. Buyer for department store.
4. Executive Secretary.
 - a. Public—state commissions of immigration, social insurance, charities and corrections, etc.
 - b. Private—organized charity, work for dependent children, etc.
5. Investigator and statistician for such private and public agencies as are noted above.
6. Case-worker.
 - a. Public—widows' pensions bureaux, out-relief, probation and parole officers, health visitors, etc.
 - b. Private—charity organization visitor, social worker for hospital, etc.
7. Institutional worker.
 - a. Matron.
 - b. Special teacher.
 - c. Director of recreation.

HYGIENE.

1. Laboratory assistant.
2. Health visitor.
3. Trained nurse (training not completed at the University).

MUSIC.

1. Composer.
2. Musical critic.
3. Organizer of musical activities.
4. Conductor and accompanist.

PALAEONTOLOGY.

1. Investigator.

PATHOLOGY AND BACTERIOLOGY.

1. Technical assistant in laboratory.
 - a. City.
 - b. State
 - c. University.
2. Assistant in research.

PHILOSOPHY.

1. Psychological investigator in schools.
2. Social worker, specially in the care of delinquents.

PHYSICS.

1. Technical assistant in electrical work.
2. X-Ray operator.
3. Optometrist.

ZOOLOGY.

1. Scientific illustrator.
2. Assistant in natural history museum.

HOME ECONOMICS—HOUSEHOLD SCIENCE.

1. Dietitian.
 - a. Hospital.
 - b. Institution.
2. Physician's helper.
3. Home Economics advisor.
4. Food analyst.
 - a. State and municipal food and drug laboratories.
 - b. Experiment station work.
5. Manager—cafeteria or restaurant.

HOME ECONOMICS—HOUSEHOLD ART.

1. Designer of costumes.
 - a. Stage.
 - b. Today.
 - c. Fashion illustration.
 - d. Fashion advertisement.
 - e. Illustration.
2. Designer of decorative needle work.
 - a. Manager in shop work.
3. Designer for machine manufacture of woven fabrics, printed wall papers, metal work.
4. Professional shopper.
5. Designer of millinery.
6. Decorator for entertainments, show windows, etc.
7. Moving picture artist.
8. Buyer for commercial houses.
9. Museum expert.
10. Art librarian.

PHYSICAL EDUCATION.

1. Supervisor of recreation.

We are not misled by the results of this inquiry. We do not intend to emphasize wage-earning till it apparently overshadows all other purposes of a college education. We do not expect to assure every woman who enters the University that she will leave it to fill a congenial and lucrative position. But we do wish to call the attention of the women students to the diverse pursuits possible for college women and to the enlarged choice of training to be obtained at the University.

As one of the answers to our inquiry clearly stated, much of the information gathered is prophetic rather than actual. "The openings will become recognized gradually and accepted as part of established usage. This will be brought about by women who offer themselves with adequate training and equipment in new lines of work and who justify their acceptance in them."

There is much, too, to be said for many women who still in the face of enlarged choice and even natural aptitude, choose to be teachers. For the woman who has the care of a home and of

ependent relatives, teaching has the attraction of reasonable hours and a long vacation. For the woman who expects to marry within two or three years of graduation, teaching offers the best position, the highest salary, and experience in the management of children. But there is an increasing group of women who can and will afford to train their special tastes and abilities for new forms of serviceable activity.

On the other hand, we are uncomfortably conscious that we have no accurate information in regard to the careers of our women graduates. We know little about their success or their estimate in the light of experience of the value of the kind of training the University affords. We have very little reliable information in regard to the openings for women in different vocations in the State of California. Nor have we attacked the problem of vocations for women from the point of view of marriage and probable short tenure of office. These three aspects of the question should have expert investigation.

Although the limitations of this inquiry are not to be overlooked, it has already proved valuable. In the future, with interest from the departments equal to that shown in the past year, it should become an important factor in a well-informed advisory system.

Respectfully submitted,

LUCY WARD STEBBINS,

Dean of Women.

CALIFORNIA MUSEUM OF VERTEBRATE ZOOLOGY*

BERKELEY, July 1, 1916.

To the President of the University,

SIR: Since the report of last year was made, normal and steady progress has marked the activities of the California Museum of Vertebrate Zoology. Our objects and methods have been set forth at length in previous reports. The working out of our programme is in process, facilitated by the continued good fortune of favorable circumstances. The most important of these is the undeviating belief in our usefulness, expressed by the founder of the Museum, Miss Annie M. Alexander, in her maintained financial support. The details of this support are on record in the report of the Secretary of the Regents. It should be understood, however, that this is only a part of Miss Alexander's gift to the University; her personal interest in details, her good counsel in matters of moment, and her encouragement all tend to raise the standard of the Museum's service.

It should be recalled here that the Museum's functions consist not only in gathering and caring for specimens of vertebrate animals, much as does a library deal with its books, but that the staff of the Museum must serve as a general bureau of information concerning the fields of science in which it works. This involves much research which does not figure in our published output. I believe the preceding year has witnessed a greater demand upon our time in this way than has any preceding one.

* A list of gifts presented to the Museum of Vertebrate Zoology will be found on pages 315-320.

letters of inquiry are numerous, especially as requesting determinations of species and the ascertainment of facts of economic bearing.

Field work during the year was centered in the Yosemite region, concerning which we are planning to issue a popular natural history. In order to be able to understand and describe the effects of the changes of season upon its animal life, Museum parties were in the field until December 20, 1915. Dr. Grinnell, Mr. Storer, Dr. Taylor, and Mr. Dixon were at work with assistants throughout the autumn months. Two supplementary visits were made by Mr. Storer to the Yosemite Valley in March and in May, while Mr. Dixon spent the period from April 15 to June 30 on the Mono Lake side of the Sierras.

Aside from work upon the Yosemite material, research time was further devoted to our book on the game birds of California, now nearing completion. Also several minor research problems were completed during the year, the titles of which will be found under the personal bibliographies of the staff members. Most noteworthy, perhaps, were the special studies upon western beavers and upon the rare tree mouse, by Dr. Taylor, an exhaustive faunal study of the Trinity region of northern California, by Miss Louise Kellogg with an analysis by Dr. Grinnell, a detailed study of the distribution of birds in California by Dr. Grinnell, and a phylogenetic study of the Bewick wrens of California by Mr. Swarth.

The Director was privileged to spend two months in the spring visiting various museums in the Atlantic States and in Canada. Not alone did this bring new ideas bearing upon the administration of a research museum, but much valuable information was secured through comparing type specimens of western mammals and birds, seeking out critical or "record" specimens of western species, and in consulting rare literature relative to western natural history.

There have been during the past year 207 separate accessions of material, comprising 3247 specimens, all of which have been properly recorded and installed in safe-keeping. The total number of catalogued specimens in the Museum on June 30, 1916, is

57,801, distributed by departments as follows: mammals, 23,963; birds, 26,594; reptiles and amphibians, 5609; sets of birds' eggs, 1635. The forty-two loans made during the year totalled 68 specimens, and went to twenty-three different institutions and individuals. In addition, much scientific use of material in the Museum was made by persons whose studies did not require it to be taken out of the building. Our custom of freely loaning desired material to responsible investigators or institutions at a distance is leading to a much greater realization of the value of our collections than would otherwise be the case.

Changes in the personnel of our staff during the year involved the resignation of Dr. Walter P. Taylor and the accession of Mr. Harry S. Swarth and Mr. Joseph Dixon. Dr. Taylor joins the technical staff of the United States Bureau of Biological Survey, in Washington, his new duties having to do with practically the same line of work relinquished here, but with larger opportunities and responsibilities. Mr. Swarth returns to us after an absence of three years during which he has served as Assistant Director and Zoologist at the Los Angeles County Museum of History, Science and Art. He resumes the Curatorship of Birds here, where his wide knowledge of systematic ornithology and his skill in museum methods help to bring us into foremost place in his field as regards western North America. Mr. Dixon becomes Assistant Curator of Mammals, with duties relating largely to field work in California. His extended experience in methods for the collecting and study of mammals in the field adds materially to our strength in these directions.

In the continuance of the work of the California Museum of Vertebrate Zoology, we are keeping in view what is believed to be a valid principle—concentration upon the definite programme for which our equipment seems to best adapt us.

Respectfully submitted,

J. GRINNELL,

Director.

GIFTS TO THE UNIVERSITY*

GENERAL LIST

Afterthought Mining Company, a large specimen of zinc ore.

Alexander, Miss Annie M., maintenance for the California Museum of Vertebrate Zoology. It was reported to the Regents on September 14, 1915, that for the half-year ending June 30, 1915, Miss Alexander had given \$3870 toward the work of the Museum, and on April 11, 1916, it was reported that for the half-year ending December 31, 1915, she had given \$5580.

On January 11, 1916, it was reported to the Regents that Miss Alexander had approved a budget for 1916 for the California Museum of Vertebrate Zoology calling for an expenditure of \$12,191.50.

Alexander, Wallace M., a subscription of \$2000 toward the fund for furnishing and equipping the new University Hospital in San Francisco.

Alumni of the University of California Medical School, an offer to maintain for five years a scholarship of the value of \$400 per annum for some worthy medical student, this to be known as the William Watt Kerr Scholarship in Medicine, in honor of Dr. Kerr, Clinical Professor of Medicine in the University of California and honored by many student generations.

Alumnus, An, a subscription of \$5000 toward the fund for furnishing and equipping the new University Hospital in San Francisco.

American Book Company, a number of volumes on zoology and botany.

American Institute of Architects, a medal and prize for the best student in architecture of the graduating class, awarded to Ephraim Field, '14.

American Law Book Company, a 43-volume set of the Cyclopedia of Law and Procedure, given as a prize for the highest scholarship in the School of Jurisprudence, and awarded to James S. Moore, Jr., '14.

Anaconda Copper Company, The, a large number of specimens of silver, copper, and gold ores and other minerals, exhibit material illustrating refinery processes and products, and a number of framed photographs of copper-treatment plants.

* Compiled by the Secretary of the Regents from the official records.

- Anderson, Frank M., \$500 for the maintenance of a graduate fellowship, preferably in Geology, this representing the return of money granted to Mr. Anderson in 1897-98 as a scholarship.
- Argentine Commission for the Panama-Pacific International Exposition, samples of Argentine woods, grains, and seeds, given for the forestry division.
- Ashburner, Mrs. Emilia Field, four volumes of miscellaneous pamphlets collected and bound by Justice Stephen J. Field and formerly part of his law library; "Some Opinions and Papers of Judge Field," six volumes; and "Legislative and Judicial Work of Justice Field," one volume, these being for the law library of the School of Jurisprudence.
- Australian Commission for the Panama-Pacific International Exposition, a model of the Broken Hill lode, several volumes of geological maps, and a valuable collection of gold and silver ores, building stones, and mineral specimens.
- Babcock, C. B., Manager of the General Gas Light Company of San Francisco, a Humphrey indoor gas arc lamp for the Department of Mechanical and Electrical Engineering.
- Babcock and Wilcox Company, through C. R. Weymouth, '98, various books for the Department of Mechanical Engineering.
- Baruch Electric Controller Corporation, a three-pole 250-volt motor saver, a three-pole set of two fuse blocks and indicating lamp bases, two Baruch protectors, two heat coils, and four samples of heat coils with fuse wires.
- Baugh, Mrs. George, forty-three volumes of interest to students of the Bengali, Hindustani, Tamil, and Singhalese languages.
- Berkeley, City of, 7500 bulbs of selected varieties of Darwin tulips, sent to the municipality by Messrs. E. H. Krelage and Sons of Haarlem, Holland, through the intercession of Mrs. A. G. Freeman of Berkeley. These bulbs have been planted on the campus, mostly in the region east of the Sather Campanile.
- Bolivian Commission for the Panama-Pacific International Exposition, a valuable collection of mineral specimens from Bolivia.
- Bonnheim, Albert. On October 12, 1915, it was voted by the Regents to accept the trust created by an indenture of September 4, 1915, in which Albert Bonnheim and Fannie Bonnheim and the Trustees of the Joseph Bonnheim Memorial Fund had conveyed to the Regents property valued at approximately \$70,000 for the endowment of the Joseph Bonnheim Memorial Fund for the maintenance of scholarships for boys and girls. The action of the Regents in accepting this generous foundation was effected through approval of the following recommendations of the Finance Committee:

"We report that the Trustees of the Joseph Bonnheim Memorial Fund and Albert Bonnheim and Fannie Bonnheim, who in 1897 created the Joseph Bonnheim Memorial Fund, have offered to convey to The Regents of the University of California \$25,000 (par value) of preferred stock of Weinstock Lubin Real Estate Company, and \$45,000 (par value) of the common stock of that corporation, as an endowment, the income to be devoted to maintaining scholarships for boys and girls in the University of California.

"We recommend that the Regents accept the trust provided for by the indenture hereinafter set forth.

"We recommend, further, that the Regents express their high appreciation of the generosity which has created these great opportunities for young men and women.

"The deed of trust which has now been executed is as follows:

"THIS INDENTURE, made this 4th day of September, one thousand nine hundred and fifteen, by and between H. WEINSTOCK, H. THORP, Dr. W. A. BRIGGS, ALBERT BONNHEIM, and FANNIE BONNHEIM, as trustees of The Joseph Bonnheim Memorial Fund, hereinafter called trustees, and ALBERT BONNHEIM and FANNIE BONNHEIM, hereinafter called the trustors, and THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, a corporation organized and existing under and by virtue of the laws of the State of California, hereinafter called the Regents, *witnesseth*:

"WHEREAS, the above named H. Weinstock, H. Thorp, Dr. W. A. Briggs, Albert Bonnheim and Fannie Bonnheim are at the present time the trustees of The Joseph Bonnheim Memorial Fund, established by deed of trust executed under date of April fifth, one thousand eight hundred and ninety-seven, by Albert Bonnheim and Fannie Bonnheim, the above named trustors, to Reverend A. Simon, William Skeels, H. Weinstock, Fannie Bonnheim and Albert Bonnheim, as the original trustees of The Joseph Bonnheim Memorial Fund; and,

"WHEREAS, since the execution of the said deed of trust the income of said The Joseph Bonnheim Memorial Fund has been used largely in the education of boys and girls at the University of California and said University of California is under the control of the Regents, and in opinion of the trustees it is desirable to vest the title to a certain portion of the property now constituting The Joseph Bonnheim Memorial Fund in the Regents, to be used for the purposes hereinafter specified;

"Now, therefore, the said H. Weinstock, H. Thorp, Dr. W. A. Briggs, Albert Bonnheim and Fannie Bonnheim, as trustees of The Joseph Bonnheim Memorial Fund, and the said Albert Bonnheim and Fannie Bonnheim, his wife, the founders of said The Joseph Bonnheim Memorial Fund, hereby give and grant unto The Regents of the University of California the following described property now constituting a portion of the said The Joseph Bonnheim Memorial Fund, as follows:

"Two thousand five hundred (2500) shares, having a par value of ten (10) dollars per share and an aggregate par value of twenty-five thousand (\$25,000) dollars, of the preferred stock of Weinstock Lubin Real Estate Company, a corporation organized and existing under and by virtue of the laws of the State of California;

"Four hundred and fifty (450) shares, having a par value of one hundred (100) dollars per share and an aggregate par value of forty-five thousand (\$45,000) dollars, of the common stock of said Weinstock Lubin Real Estate Company;

"In trust, nevertheless, for the following purposes:

"The principal of said fund shall be kept intact, but the income therefrom shall be by the Regents expended in assisting worthy boys and girls in their education at the University of California, with a view to making them self-supporting as rapidly as possible. The Regents shall use their own best judgment in making selections of the persons to receive assistance from said fund and in determining the amount to be expended for assisting beneficiaries, provided that the benefits to any one person shall not be less than twenty (20) dollars per annum nor more than four hundred (400) dollars per annum. In selecting the beneficiaries, the Regents shall make no distinction on account of sex, race, color, nationality, or religion, giving preference, however, to boys and girls between the ages of sixteen (16) and nineteen (19) years, but continuing the assistance after that age if in their judgment necessary to make the beneficiary self-supporting.

"By 'education' is meant education in its broadest sense, having in view such preparation and training as will make the beneficiary self-sustaining by whatsoever trade, profession or calling as may seem best adapted for such purpose in each case.

"The Regents are expressly given full and unrestricted rights of control, disposition and ownership of said stock and its proceeds, subject only to the purpose of maintaining a perpetual fund properly invested so as to yield an income for the purposes herein specified.

"In witness whereof, the trustees and the trustors have hereunto signed their names the day and year above written.

FANNIE BONNHEIM,

(Signed) HARRIS WEINSTOCK,

A. BONNHEIM,

H. THORP,

W. A. BRIGGS,

As Trustees of The Joseph Bonnheim
Memorial Fund.

A. BONNHEIM,

FANNIE BONNHEIM,

As the Founders of The Joseph Bonnheim
Memorial Fund."

Bonnheim, Albert, \$250 for the Bonnheim Essay Prizes and the Bonnheim Discussion Prizes.

Bowles, Regent P. E., \$500 toward the cost of planting the hill lands of the University.

Bradley, '86, F. W., equipment for the Department of Mining and Metallurgy, including an air compressor, valued at \$2350, a drill sharpener, a photostat valued at \$500, sets of vertical and horizontal dies, a variety of equipment for the photostat, a magnetometer, and other

apparatus. During the year the total gift of Mr. Bradley for additions to the equipment of the Department of Mining and Metallurgy was \$5582.30.

\$1000 as the third installment of his annual gift toward a fund, eventually to be \$10,000, to aid worthy students in Mining.

Bunker Hill and Sullivan Mining Company, The, two mine cars.

Burke, James M., and the firm of Lamberson, Burke, and Lamberson, conduct to a successful issue of the University's defense against the suit brought by the heirs of Horace Whitaker to obtain possession of Whitaker's Forest, these legal services being given without fee.

California State Commission for the Panama-Pacific International Exposition, The, fifty-six sacks of copper ores, a box of diamond drill ores, thirty pieces of dressed building stones from Siskiyou County, and a number of specimens of different California ores.

Cebrian, John C., 242 volumes of Spanish works, as an addition to the large collection in this field which he has already given the University.

Chicago Pneumatic Tube Company, a sectionalized rock drill with mounting.

Chinese Commission for the Panama-Pacific International Exposition, four framed embroidery pictures, three cases of metallurgical specimens, a model of a Confucian temple, and other gifts.

Class of 1915, \$1000 as the Class of 1915 Fund, the income therefrom (subject to determination by the Regents from time to time of the rate) to be paid to the class, and upon the death of the last surviving member, or at such date prior to that time as may be fixed by the class, the fund itself to be devoted to some University purpose.

Colin, Mme. Thérèse F., a bequest of \$999.24, the income to be paid to Mrs. Lucie F. Hopkins of Los Angeles during her lifetime, and thereafter to be applied toward the support of the Thérèse F. Colin European Graduate Fellowship in the Romanic Languages.

Concordia Safety Lamp Company, a Concordia electric lamp.

Crane Company, as a gift to the Department of Mechanical and Electrical Engineering, a large exhibit of the products of that company, including representative specimens of the large valves, steam traps, etc., used on steam generating plants and distribution lines. The larger valves are mounted on steel pedestals with revolving tops and are sectioned to enable the students to view their construction and to make use of them in connection with their design work. The exhibit represents an outlay of about \$1500.

Crocker, Regent William H., \$1000 for the use of Professor Charles A. Kofoid for investigations in protozoology in the jungles of India and Java with special relation to the parasitic protozoan fauna of the digestive tract of higher mammals.

\$2616.50 as a further contribution toward the University Hospital Building Fund.

Dohrmann, the children of the late Regent Frederick W., in accordance with the desires of their father, \$500 as a contribution toward the equipment fund of the new University Hospital in San Francisco.

Fisk, Mrs. Elizabeth C., various Filipino weapons and articles of Filipino clothing, to be added to the Asa F. Fisk collection in the Museum of Anthropology.

Fitzhugh, William M., \$275 for a marble chair in the Greek Theatre, in memory of Eugene Woldemar Hilgard, Professor of Agriculture and Dean of the College of Agriculture.

France, Republic of, through the French Commission to the Panama-Pacific International Exposition, the extraordinary collection of some six thousand volumes, representing France's contribution to modern science, literature, and art, which constituted one of the chief treasures exhibited by France at the Panama-Pacific International Exposition. This remarkable collection will be installed in a special room of the University Library at Berkeley.

France, Republic of, through the French Commission for the Panama-Pacific International Exposition, 144 photographs of French architecture, mostly of public buildings and Gothic and Romanesque cathedrals.

Friend of the University, A, \$690 toward the maintenance of the California Museum of Vertebrate Zoology.

Friend of the University, A, a promise of \$200 a month for five years beginning January 1, 1916, for palaeontological research. This is a renewal of a gift which has greatly stimulated and aided the richly productive researches of Professor J. C. Merriam and his colleagues and disciples.

Friend of the University, A, provision for the salary for 1915-16 of the Instructorship in Neurology, at \$1200.

Friend of the University, A, \$1200 as a gift toward the maintenance of the Edith Claypole Memorial Research Fellowship in Pathology for 1915-16.

Friend of the University, A, \$1125 for the purposes of the Edith Claypole Memorial Research Fund in Pathology, of this \$400 being for interest on notes given as part of the endowment, and \$725 being a donation toward the maintenance for 1916-17 of the Edith Claypole Assistantship in Pathology.

Friend of the University, A, \$2000 in payment of a note given April 12, 1915, as part of the endowment for the Edith Claypole Memorial Research Fund in Pathology, three-quarters of the income to be used annually, under joint direction of the President and the professor in charge of the Department of Pathology and Bacteriology, for the encouragement of investigation of problems in pathology by women physicians, and particularly toward research in the diagnosis and specific therapy of infectious diseases of man, and one-quarter to be added to the fund until the latter shall reach \$20,000, after which all the income shall be used for the purpose named, the principal being kept without impairment.

Friend of the University, A, a subscription of \$2000 toward the fund for furnishing and equipping the new University Hospital in San Francisco.

Friend of the University, A, \$50 to be loaned to needy students.

Friend of the University, A, \$2500 for the fund for the new University Hospital in San Francisco.

General Electric Company, a display cabinet showing semi-refined tungsten and the steps which follow in the making of tungsten wire for use in modern incandescent lamps.

General Gas Light Company, through the courtesy of its manager, C. B. Babcock, an indoor gas arc lamp, for the Department of Electrical Engineering.

Golden-Anderson Valve Specialty Company, a collection of blueprint drawings of valve specialties, given to the Department of Mechanical Engineering at the close of the Exposition.

Guggenime, D. J., \$100 for the placement and extension of the Dr. Elias Grünebaum Memorial Collection of Hebrew books.

Hahnemann Medical College of the Pacific, \$2000 as salary for Dr. William Boericke as Clinical Professor of Homoeopathic Materia Medica in the University of California Medical School.

Haskell, Dr. Carrie Goss, a number of volumes from the library of the late Perry M. Scott, '08.

Hawaii, University of California Club of, an offer to maintain a loan scholarship of the value of \$500 per annum.

Hearst, Regent Phoebe Apperson, \$2323.02 for apparatus for the further equipment of the Hearst Memorial Mining Building.

\$2400 for the support of the Phoebe A. Hearst Scholarships for 1915-16.

\$1000 as a contribution toward the salary for 1915-16 of Professor

A valuable collection of twenty sets of samples of ores from the John Galen Howard as Supervising Architect.

Cerro de Pasco Mining Company in Peru.

Thirteen samples of ores from Morococha.

A number of Indian baskets for the Museum of Anthropology.

Samples of the pottery and bead work of the Pueblo and Plains Indians.

\$1680 for the maintenance of the Museum of Anthropology.

Henshaw, Judge F. W., two crescentic stone implements from Santa Catalina Island.

Homestake Mining Company, through the courtesy of Mrs. Phoebe A. Hearst, a model of the Homestake Mine, as exhibited in the display of the United States Bureau of Mines at the Exposition.

Hooker, Mrs. Katherine, a North Pacific Coast paddle and a Melanesian mask.

Idaho State Commission for the Panama-Pacific International Exposition, The, a case of lead-silver ores from Idaho, and other mineral specimens.

Jackling, Daniel C., \$1000 toward the fund for furnishing and equipping the new University Hospital in San Francisco.

Japanese Commission for the Panama-Pacific International Exposition, The, a model of Matsushima Park, rice plant specimens, a number of books, valuable medical and hygienic exhibits, silk-worm exhibits, models and charts showing economic and educational statistics, exhibits in the field of the fine arts, and many other gifts.

Eighteen chairs, four tables, and four flower-stands, from the Japanese Building at the Exposition, given for the University Hospital.

Two models of Japanese volcanoes and a large number of specimens of Japanese minerals.

One of the Japanese buildings at the Exposition. It was subsequently found impracticable to remove this building, so, with the approval of the Japanese Commission, it was destroyed, at the expense of the University.

Two sets of specimens of pearl oysters, showing their life-history.

Johns-Manville Company, H. W., a gift to the Department of Mechanical and Electrical Engineering of various non-conducting materials, together with standard specifications for their use.

Julliard, Frederick A., a marble chair in the Greek Theatre, given in memory of Félicien Victor Paget, Professor of Romanic Languages and Literatures, who died December 23, 1903; the gift being made on the occasion of the twenty-fifth anniversary of the graduation of Mr. Julliard's class from the University.

Keyes, Dr. Robert E., Librarian of the College of Dentistry, \$25 for the purchase of books for the College of Dentistry.

- Levy, Mr. and Mrs. Max, establishment of the Jerome C. Levy Scholarship (the funds not handled by the University), to be awarded annually in memory of their departed son to a member of the graduating class of the Stockton High School chosen by the faculty of the school on the basis of character, scholarship, and need.
- Mascot Copper Company, The, a large specimen of chalcopyrite ore.
- Massachusetts Commission for the Panama-Pacific International Exposition, reports of the State of Massachusetts on vocational education.
- Merrill, Charles W., '91, a subscription of \$1000 toward the fund for furnishing and equipping the new University Hospital in San Francisco.
- Miller, '85, Dr. Harry East, 200 volumes of valuable chemical journals and a set of "Illustrirte Zeitung" from 1870 to 1912, inclusive. It was reported also that Dr. Miller had expressed his generous intention of eventually turning over to the University Library his entire technical library.
- Mills, Ogden, \$5000 toward the maintenance of the D. O. Mills Expedition from the Lick Observatory to the Southern Hemisphere.
- Missouri Commission for the Panama-Pacific International Exposition, eighteen cases of ores, minerals, and mineral products, sixteen sacks of iron ores, and other mineral exhibits.
- Moffitt, Mrs. James, a subscription of \$5000 toward the fund for furnishing and equipping the new University Hospital in San Francisco.
- Moffitt, '86, Regent James K., use for a year, without interest, of \$26,000 to finance, until Permanent Building Fund moneys became available in July, 1916, relief for the greatly overcrowded Department of Anatomy by the removal of the Printing Office to a new service department west of California Field and by re-equipment of the space vacated by the Printing Office for use by the Department of Anatomy.
- \$1100 to maintain the Instructorship in Urology in the University of California Medical School for 1915-16.
- Morrison, Alexander, a subscription of \$1000 toward the fund for furnishing and equipping the new University Hospital in San Francisco.
- Napa Seminary Club Loan Fund Committee, through its chairman, Miss Fannie C. Smith of 2909 Hillegass avenue, Berkeley, \$100, to bring the Napa Seminary Club Loan Fund to a total of \$644.10.
- Nathan, Bernhard, a bequest of \$5000, "the annual income thereof to be used to assist deserving students while at the University, with particular consideration for those of Jewish parentage."
- New South Wales Trade Commission to America, specimens of a kangaroo and an emu.
- New York Commission for the Panama-Pacific International Exposition, The, a large pink calcite crystal and a case of specimens of magnetite, calcite, and garnet, etc.

Noble Electric Steel Company, The, a collection of iron ores and products.

Norwegian Commission for the Panama-Pacific International Exposition,

The, an exhibit of silicon carbide and of other electric furnace products, charcoal, and miscellaneous metal products and copper ores.

Ohlandt, N., \$1500 toward the fund for furnishing and equipping the new University Hospital in San Francisco.

Oriental Institute, a lot in Berkeley, conveyed as an endowment, the income to be devoted to aiding students in the University who are of Oriental race, the property being described as follows:

Commencing at the point of intersection of the easterly line of Sacramento street as said Sacramento street now exists since the widening thereof by that certain deed from F. M. Smith and Evelyn E. Smith, his wife, and F. C. Havens and Lila R. Havens, his wife, to City of Berkeley, a municipal corporation, dated September 28th, 1909, and recorded November 15th, 1909, in liber 1640 of Deeds, at page 431, in the office of the County Recorder of Alameda County, with the northerly line of Cedar street; and running thence along said easterly line of said Sacramento street, north five (5) degrees twenty-two (22) minutes west one hundred and forty-three (143) feet; thence north eighty-four (84) degrees thirty-eight (38) minutes east one hundred and eleven and 23/100 (111.23) feet to the easterly boundary line of that certain piece or parcel of land described in description No. 14 in that certain deed from F. M. Smith and Evelyn E. Smith, his wife, and F. C. Havens and Lila R. Havens, his wife, to The Realty Syndicate, a corporation, dated May 22nd, 1907, and recorded February 19th, 1909, in liber 1548 of Deeds, at page 364, in the office of the County Recorder of said County of Alameda; thence along said easterly boundary line of said piece or parcel of land south five (5) degrees twenty-one (21) minutes east one hundred and thirty-four and 94/100 (134.94) feet to said northerly line of said Cedar street; thence along said northerly line of said Cedar street south eighty (80) degrees and thirty (30) minutes west one hundred and eleven and 50/100 (111.50) feet to the point of commencement.

Being a portion of plot numbered eighty-nine (89), as said plot is laid down and delineated upon that certain map entitled "Map of the Ranchos of Vicente & Domingo Peralta, containing 16,970.68 acres, surveyed by Julius Kellersberger, etc.," filed January 21st, 1857, in the office of the County Recorder of said County of Alameda.

Pacific Coast Gas Association, \$5000 to be applied toward the University's work of education in the field of gas engineering.

Pacific Gas and Electric Company, through the courtesy of Regent John A. Britton, the aid of two steam engineers in the matter of planning the installation of the proposed new unit of the Central Heating and Power Plant.

Palache, Whitney, lots 10 and 11 in block "E," in Claremont Court, Berkeley, as endowment for a bed in the University Hospital, in memory of Belle G. Palache and Joseph Baldwin Garber, '92, the property being conveyed without reserve, and Mr. Palache stating that

if in the judgment of the Regents a favorable opportunity should occur to sell the property and the amount realized should be less than \$10,000 he would be prepared to make good the deficiency.

Partsch, Dr. Herman, \$100 as an addition to the loan fund of the Class of 1881.

Pelton Water Wheel Company, a portrait of Lester A. Pelton, inventor of the Pelton water wheel, this being given to the Department of Mechanical Engineering.

Pennsylvania Railroad Company, a model of the Union Station in Washington, D. C., of the Pennsylvania Railroad Company.

Pettingell, W. J., of the Santa Barbara Nursery Company of Goleta, California, 150 evergreen shrubs of nearly sixty ornamental varieties, to be planted at the University Farm at Davis and in the cañon near the Faculty Club at the University.

Philippine Commission of the Panama-Pacific International Exposition, a collection of 209 sets of pressed botanical specimens.

Probert, Professor Frank H., \$60 for the assistance of some deserving student.

Prytanean Society, \$366 for eventual use for a student's union, or for some other University purpose later to be determined by the society, this fund to be included in the special endowment pool created for the handling of "special gifts for special purposes."

Fifty dollars for the Infirmary.

Purviance, Charles, a collection of specimens from cliff dwellings.

Rickard, T. Arthur, Editor of the "Mining and Scientific Press," \$75 to aid some deserving student.

Rockefeller Institute for Medical Research, a grant of \$500 to aid Dr. Frederick Parker Gay, Professor of Pathology, in investigations as to the specific treatment of typhoid.

San Francisco Girls' Union, bonds valued at \$5000 as endowment for the San Francisco Girls' Union Scholarship, the income on these or on their proceeds to be applied to the support at the University of California of some worthy and needy woman student, these scholars to be appointed annually by the faculty of the University, or by some committee thereof to whom such duty has been delegated by the President of the University. Resolutions in part as follows were adopted by the Regents:

"WHEREAS, The Regents of the University of California have received the following communication from the San Francisco Girls' Union:

“ ‘The San Francisco Girls Union hereby assigns . . . unto The Regents of the University of California . . . the following personal property, to wit: . . . for the purpose of creating in the University of California a scholarship to be known as the San Francisco Girls Union Scholarship. For the accomplishment of this purpose the personal property above described, or its proceeds, shall be held by the Regents. The annual income thereof shall be applied to the support at the University of California of some worthy (and needy) woman student.

“ ‘The Regents shall have the full and unrestricted right of control, disposition and ownership of said personal property and its proceeds, subject only to the purpose of maintaining a perpetual fund properly invested so as to allow an income for the purpose of said scholarship, and the Regents may, at their option, invest this fund separately or in conjunction with their other funds.

“ ‘The appointment to said scholarship shall be made annually by the faculty of said University or by some committee thereof to whom such duty has been delegated by the President of the University.

“ ‘It is expected that from time to time a nomination for appointment to this scholarship may be made by the present officers of the San Francisco Girls Union, subject to the approval of the faculty, or of such committee thereof.

“ ‘San Francisco, September 28, 1915.

“ ‘SAN FRANCISCO GIRLS UNION,

“ ‘(Signed) By Adeline N. Belcher, President,
By Emma Growall, Secretary,
By Annette Carpenter, Treasurer, pro. tem.’

“ ‘Now, therefore, be it resolved, That the Finance Committee hereby accepts in behalf of The Regents of the University of California, the gift offered by the foregoing communication from the San Francisco Girls’ Union, subject to the conditions therein expressed, and be it further

“ ‘Resolved, That the thanks of The Regents of the University of California be extended to the San Francisco Girls’ Union for its generous provision for aid to the women students of the University of California.’”

Sangamo Electric Company, electric meters to be used by the Department of Mechanical and Electrical Engineering, including (a) one 20-ampère ampère-hour meter; (b) one 5-ampère, 60-cycle, 110-volt, type H wattmeter; (c) one 10-ampère, 125 volt, D. C. wattmeter; (d) one Shunt trip circuit breaker.

Scripps, Miss Ellen B.

Expenditures during the year ending June 30, 1916, for material developments at the Scripps Institution for Biological Research, \$80,071.50. This has included the following expenditures: On the concrete wharf, \$26,184; pumping equipment, \$2443.50; sedimentation tank, \$2715; sea wall, \$1890; total for the wharf and its appurtenances, \$33,232.50; for the library and museum building—the main structure

\$17,928, book-stacks \$2014, furniture \$1561, window-shades, etc., \$136, excavating and grading \$2000, architects' fees \$800, inspection \$400, total \$24,839; the "Commons," \$4000; nine cottages for the staff, \$16,000; public aquarium building, \$2000; total, \$80,071.50. These expenditures are in pursuance of the offer made by Miss Ellen B. Scripps two years ago to expend \$100,000 in improvements. She has agreed to add \$2856 to the amount of her subscription for these purposes to meet an increase in the cost of the wharf due to the fact that greater depth of sand and water was encountered than the original surveys had recognized.

The sum of \$5122 was received during the year for the maintenance and enlargement of the biological library, and the sum of \$1350 for general improvements to the grounds and buildings of the Scripps Institution, in addition to the gifts mentioned above.

\$9000 as an annually recurring gift toward the maintenance of the Scripps Institution for Biological Research.

Scripps, E. W.

\$6300 for permanent improvements at the Scripps Institution for Biological Research, including roads, bridges, a new speed motor boat, widening of the floor of the pier, additions to the library, works of art, etc.

\$1500 toward the maintenance of the Scripps Institution for Biological Research.

Steinhart, Ignatius, \$250 for aid in the researches of Professor Kofoid in India and Java in the field of protozoology.

Swedish-American Patriotic League of California, \$125 as its first yearly gift, for the maintenance for 1915-16 of a scholarship for a Swedish-American student.

Swedish Commission for the Panama-Pacific International Exposition, The, a large number of specimens of ores, iron and steel products, and photographs showing hydro-electric developments in Sweden, exhibits of grain, seeds, agricultural pictures, and a case of wood waste suitable for distillation.

A 500-volt 30 ampère starting-box; a direct current motor, type K-4, 950 r.p.m., 3 h.p.; and a $\frac{1}{2}$ h.p. 3-phase 380-volt alternating current motor.

Taussig, Regent Rudolph J., \$100 as the Bryce Historical Essay Prize for 1916.

Thane, Mrs. J. E., the football used in the "30 to 0" California-Stanford football game in the year 1898, this football having been in the possession of her son-in-law, James R. Whipple, ex-'00, Assistant Manager of the Alaska-Gastineau Gold Mining Company, until his death in 1915.

Thordarson Electric and Manufacturing Company, through the courtesy of Mr. A. S. Lindstrom, a replica of a section of the winding of the million-volt transformer used in connection with the high-voltage research conducted by the Panama-Pacific International Exposition, by engineers representing the Smithsonian Institution of Washington and the Research Corporation of New York City, with the end in view of effecting the dispersion of fog by electricity.

Tourmaline King Mine, through the courtesy of Mr. F. B. Schuyler, a number of specimens of lepidolite, tourmaline, etc.

Transvaal Chamber of Mines, a case containing gold ores from the Transvaal.

Trask, Mrs. Blanche, arrowpoints and potsherds from the vicinity of Indio, California.

United States Bureau of Fisheries, thirteen specimens of sharks from the California coast, representing four species.

United States Bureau of Mines, 210 pieces of mining timber, 206 sacks of lead-silver, gold, and iron ores, and various fuse material.

United States Department of the Interior, through the United States Geological Survey, four maps of San Francisco and its vicinity which were exhibited at the Exposition.

A set of maps of public lands in the United States.

United States Geological Survey, ten cases containing exhibits of minerals and ores, an exhibit representing the per capita production of various mineral commodities in the United States, exhibits illustrating the coal, coke, and cement industries, and a number of specimens of marble.

United States Government Exhibit Board for the Panama-Pacific International Exposition, a model of the Lincoln Memorial in Washington, this model having been exhibited in the Palace of Liberal Arts throughout the Panama-Pacific International Exposition.

Utah Coal Operators' Association, The, an obelisk of Utah coal.

Wisker, A. K., twelve Japanese pear seedlings from the Loma Rica Nursery.

Women's Auxiliary Board of the Panama-Pacific International Exposition, the mural painting executed by Miss Florence Lundborg for the Women's Tea Room of the California Building at the Exposition. (Eventually it was decided best by the Women's Board, the University agreeing, that these murals should remain in place in the room for which they were originally painted, since the preservation was decided on of the California Building as quarters for the San Francisco State Normal School).

NOTE.—See also the following departmental lists of gifts and the list of gifts in the statement of income for 1915-16.

DEPARTMENTAL LIST

GIFTS TO THE DEPARTMENT OF AGRICULTURE, 1915-16

ANIMAL HUSBANDRY

Bullard Brothers of Woodland, three Rambouillet ewes.
Howland, Winthrop, of Redlands, four Toggenburg milch goats.
Wright, W. W., of Los Banos, a pair each of Persian sheep and Angora goats.

DAIRY INDUSTRY

Beatrice Creamery Company, Chicago, Illinois, one No. 48 Beatrice hand separator.
Burrell & Co., D. H., Little Falls, N. Y. (Baker and Hamilton, Agents, San Francisco), one No. 5 Simplex hand separator.
De Laval Dairy Supply Co., San Francisco, one Acme De Laval turbine separator, one No. 15 De Laval hand separator, and one disc continuous ice-cream freezer.
Empire Cream Separator Company, Bloomfield, N. J., one No. 42 Empire hand separator.
Sharples Separator Co., West Chester, Penn., one No. 10 Sharples turbine separator and one Jersey hand separator.
Vermont Farm Machine Co., Bellows Falls, Vermont, one No. 15 U. S. hand separator and one No. 6 U. S. hand separator.

ENTOMOLOGY

Gowdey, Professor C. C., Government Entomologist for Uganda, Africa, 60 specimens from Africa.
Jones, Mr. Paul R., 1000 slides of Thysanoptera.
Porter, Professor, Santiago, a small collection from Chile.
Tyler Townsend, Professor C. H., and Rust, Mr. E. H., 20 specimens from Peru.
Van Duzee, Professor E. P., Berkeley, 5448 specimens of beetles and 900 specimens of Hymenoptera.

FORESTRY

(August 1, 1914, to April 30, 1915.)

American Hoist and Derrick Company, St. Paul, Minn., four framed views of the American log loader.
Berry Brothers, Detroit, Mich., a framed set of stained woods.

- Booth-Kelly Lumber Company, Eugene, Oregon, four specimens of Douglas fir lumber.
- Booth Lumber Company, Ottawa, Canada, two specimens of Norway pine and white spruce lumber.
- Brown Hoist Machinery Co., San Francisco, framed view of the Brown hoist lumber-handling crane.
- California Sugar and White Pine Co. (Frederick F. Sayre, president), San Francisco, 60 specimens of wood from New South Wales.
- Cornell University Department of Forestry, Ithaca, N. Y., 24 specimens of eastern woods.
- Cristadoro, Charles, Point Loma, a photograph.
- Forest School of the University of New Brunswick, Fredericton, N. B., 20 specimens of wood of eastern species.
- Hall, Ansel F., Oakland, photographs of forest conditions in California.
- Jepson, Willis L., Berkeley, a copy of "Silva of California."
- Lamoine Lumber and Trading Co., Lamoine, 50 specimens of lumber common in the northern Sierras.
- Langworthy, R. D., Norfolk, photographs of insect control work.
- Lee, Henrietta, Red Bluff, photographs of Mount Lassen and its vicinity.
- Louisiana Red Cypress Company, New Orleans, La., five specimens of cypress lumber and "The Cypress Library."
- Maoriland Importing Company, Dunedin, New Zealand, four specimens of important New Zealand woods.
- Mathews, William C., Fort Bragg, photographs and herbarium specimens.
- McCloud River Lumber Company, McCloud, three sets of photographs showing grades of lumber.
- Meinecke, Dr. E. P., Bureau of Plant Industry, U. S. Department of Agriculture, San Francisco, 10 copies of "Forest Tree Diseases Common in California and Nevada."
- Metcalf, Woodbridge, Berkeley, 75 U. S. Forest Service bulletins and photographs of forest conditions in Canada and Washington.
- Mitsui and Company, San Francisco, five samples of Japanese woods.
- Mulford, Walter, Berkeley, 2000 unbound forestry pamphlets and books and 137 bound volumes on forestry.
- Muzzall, A. H., Santa Barbara, 25 U. S. Forest Service bulletins and various herbarium specimens.
- Pacific Tank and Pipe Co., San Francisco, two samples of six-inch machine banded pipe, one of Douglas fir and one of redwood.
- Pratt, M. B., Oakland, 50 U. S. Forest Service bulletins and circulars.
- Redwood Burl Company, San Francisco, six specimens of redwood burl.
- Roebeling's Sons Co., John A., San Francisco, exhibition board, 35 inches by 42, showing different sizes of wire rope.
- Simonds Manufacturing Co., Fitchburg, Mass., exhibition board, 7 feet square, showing cross cut saws in both bucking and falling patterns, and progressive steps in the manufacture of circular saws.

- Smith, Leland S., Berkeley, herbarium specimens and photographs of forest conditions in California.
- U. S. Forest Service, Washington, D.C., 75 hand specimens of wood and two large wall-maps of the United States showing forest regions and the National forests.
- U. S. Forest Service, District I, Missoula, Montana, herbarium specimens of foliage, fruit, and wood of the principal Montana trees.
- U. S. Forest Service, District V, San Francisco, large Land Office map of California, mounted; 60 maps of National forests in California, 50 copies of "Use Book," and 35 copies of "Fire Protection Manual."
- U. S. Forest Service, Ozark National Forest, Harrison, Ark., 16 specimens of wood, twigs, and leaves.
- U. S. Forest Service, Sequoia National Forest, Hot Springs, California, Sequoia seedlings, cones, and wood, and 200 U. S. Forest Service publications.
- U. S. Forest Service, Tahoe National Forest, Nevada City, California, 50 U. S. Forest Service publications.
- Warren Ax and Tool Company, Warren, Pa., logging tools and equipment as follows: 7 axes, 3 wedges, 3 peavies, 2 cant hooks, pike pole, hook-a-roon, 2 bark spuds, swamp, choker; loading, grab, and grapple hooks; pair of tongs, maul and skipper, trailer and crotch grab.
- White Brothers, San Francisco, 30 samples of hardwood lumber.
- Wieslander, A. E., Oakland, herbarium specimens and photographs of forest conditions in California.

(May 1, 1915, to June 1, 1916.)

- Adams, Frank, University of California, 25 pamphlets on forestry.
- Armstrong Cork Company, Pittsburgh, Pa., box of articles illustrating utilization of cork.
- Argentine Republic, planks and wood sections from exhibit at the Exposition.
- Atkins, E. C. & Co., Indianapolis, Ind., exhibit showing steps in the evolution of the saw-handle.
- Berry, Professor R. B., University of Georgia, seed, herbarium, and wood specimens of southern trees.
- China, Republic of, specimens of wood exhibited at the Exposition.
- Cypress Manufacturers Association, New Orleans, La., the "Cypress Library" and specimens of cypress wood.
- Disston and Sons, Henry, Philadelphia, Pa., display board, 6 feet by 7 feet, showing cross-sections of cross-cut and band saws.
- Divine, Dwight & Sons, Ellenville, N. Y., samples of wood from which knife handles are made.
- Dunning, Duncan, specimen of *Pinus pinaster*.

- Durham, Professor E. B., University of California, 12 specimens of eucalyptus wood.
- Eberhard Faber Co., Brooklyn, N. Y., exhibit showing the evolution of a lead pencil.
- Fischer, Arthur F., Bureau of Forestry, Philippine Islands, herbarium specimens of three Philippine pines.
- Frank Pipe Co., New York, exhibit showing evolution of a pipe.
- Goodyear Rubber Co., San Francisco, six specimens of crude and finished rubber.
- Guatemala Government, specimens of woods exhibited at the Exposition.
- Henderson, W. J., Eureka, herbarium specimen and wood of *Pinus muricata*.
- D. Hill Nursery Co., Dundee, Ill., seed of 50 species of softwoods and hardwoods.
- Honduras Government, specimens of wood exhibited at the Exposition.
- Indianapolis Sawed Veneer Co., Indianapolis, Ind., panels and sample pieces of oak veneer.
- Japanese Government, four standards containing specimens of wood exhibited at the Exposition.
- Jones, Miss K. P., University of California, herbarium specimens of eucalyptus and native oaks.
- Kaul Lumber Co., Birmingham, Ala., 13 samples of southern yellow pine lumber.
- Louisiana State Commission, boards of southern lumber, trunk of tapped pine tree, keg of rosin, exhibited in the Louisiana State exhibit at the Exposition.
- McClure Co., Saginaw, Mich., four samples of redwood illustrating durability.
- McNeil Co., R. S., Brooklyn, N. Y., exhibit showing the evolution of a shoe last.
- Miller, Professor R. B., University of New Brunswick, 120 pounds of herbarium and wood specimens of eastern trees.
- Mitsui & Co., San Francisco, 18 pieces of Japanese lumber exhibited at the Exposition.
- New York Quebracho Extract Co., New York, samples of Quebracho wood and extract.
- Oval Wood Dish Co., Toledo, Ohio, mapleware lunch set.
- Pratt, Professor M. B., University of California, one volume, "Preparation of Forest Working Plans in India," by W. E. D'Arcy.
- Red Gum Manufacturers Association, Memphis, Tenn., five specimens of red gum lumber.
- Sayre, F. L., California Sugar and White Pine Co., San Francisco, slabs of sugar and western yellow pine and series of views showing steps in logging and milling in the California pine region.

- Smith Lumber Co., C. A., Marshfield, Ore., exhibit of Douglas fir and Port Orford cedar lumber at the Exposition.
- Sonn Brush Co., A. S., Troy, N. Y., six blocks showing the evolution of a brush back.
- Thornburn Co., J. M., New York, seeds of 50 species of trees.
- U. S. Forest Service, Madison, Wis., 15 samples of wood illustrating wood preservation.
- U. S. Forest Service, District V, San Francisco, 7 lbs. of seed from western forest trees.
- Yale Forest School, New Haven, Conn., 45 samples of eastern woods.

IRRIGATION

- Builders Iron Works, Boston, Mass., Venturi irrigation meter.

POULTRY HUSBANDRY

- Gallup, Elius, Hanford, one setting of American Dominique eggs.

UNIVERSITY FARM

- Braun-Knecht-Heimann, San Francisco, six sample bottles of sulphur, bluestone, and ironsulphate.
- General Chemical Company, San Francisco, 50 lbs. of Atomic sulphur.
- Hecke, G. H., Woodland, framed picture, 25 inches by 33 inches, "Drying Yard Scene."
- Heller, L. U., Chicago, Heller's butter fat tablets.
- Koontz, S. E., Davis, 16 ears of Ventura County white corn.
- Owen, T. B., Athlen, 20 lbs. of white Milo maize.

AGRICULTURAL LIBRARY

The following donors have generously presented agricultural publications to the Library. In addition, a number of agricultural colleges and experiment stations have kindly contributed back numbers of bulletins and reports to complete sets, as also current numbers:

	Bound	Unbound
American Association of Nurserymen, Rochester, N. Y.....	....	6
American Museum of Natural History, New York City .....	....	23
California State Commission of Horticulture, Sacramento, Cal.	219	58
California State Normal School, Santa Barbara Cal.	2	29
Campbell Soil Culture Publishing Company, Lincoln, Neb.	1	....
Citrus Protective League, Los Angeles, Cal. ....	....	6
Coit, J. E., Berkeley, Cal.	2	....
Commonwealth Club, San Francisco .....	....	13
Connecticut State Board of Agriculture, Hartford, Conn.	3	....

	Bound	Unbound
Connecticut State Entomologist, New Haven, Conn.	5	27
Connecticut State Library, Hartford, Conn.	5	27
Drew, A. M., Fresno, Cal.	---	10
England, Board of Agriculture and Fisheries, London, England	---	42
Florida Geological Survey, Tallahassee, Florida	3	5
Hall, H. M., Berkeley, Cal.	1	---
Haring, C. M., Berkeley, Cal.	1	---
Henius, Max, Chicago, Ill.	---	1
Hilgard, E. W., Berkeley, Cal.	---	45
Hunt, Thomas Forsyth, Berkeley, Cal.	1	---
Illinois State Food Commission, Chicago, Ill.	---	28
Illinois, University of Chicago Libraries	5	5
Indiana State Library, Indianapolis, Ind.	20	28
International Harvester Company, Chicago, Ill.	---	27
Iowa Beef Producers Assn., Ames, Ia.	---	4
Iowa State Board of Education, Des Moines, Ia.	1	1
Iowa State Veterinary Department, Des Moines, Ia.	---	13
Italy, Stazione di Patologia Vegetale, Rome, Italy	---	12
Lawson, A. C., Berkeley, Cal.	---	2
Loughridge, R. H., Berkeley, Cal.	11	---
Louisiana Commissioner of Agriculture and Immigration, Baton Rouge, La.	---	9
Maine State Library, Augusta, Maine	1	1
Maine State Water Storage Commission, Augusta, Maine....	1	---
Massachusetts State Board of Agriculture, Boston, Mass....	---	50
Mexico, Director of Agriculture, Mexico, D. F.	---	9
Minnesota Department of Labor and Industries, St. Paul, Minn.	3	3
Missouri Botanical Gardens, St. Louis, Miss.	1	6
Mulford Company, H. K., Philadelphia, Pa.	---	12
National Highway Association, South Yarmouth, Mass.	---	36
National Nut Growers' Association, Cairo, Ga.	---	7
Nevada Bureau of Industry, Agriculture and Irrigation, Carson City, Nev.	---	7
New Jersey State Geologist, Trenton, N. J.	3	4
New York International Health Commission, N. Y.	---	12
New York Milk Company, New York City	---	10
New York State Fruit Growers' Association, Pen Yan, N Y.	---	6
New York State Library, Albany, N. Y.	2	25
New York, Western Horticultural Society, Rochester	---	3
Northern Nut Growers' Association, New York City	---	5
Nutting, W. R., Fresno, Cal.	10	125
Ohio, Cleveland Public Library, Cleveland, Ohio	11	1

	Bound	Unbound
Ohio, Lloyd Library, Cincinnati, Ohio .....	....	92
Ohio, Oberlin College Library, Oberlin, Ohio	5	62
Ohio State Library, Columbus, Ohio	15	9
Ohio State Veterinarian, Columbus, Ohio .....	....	7
Ohio State Board of Agriculture, Columbus, Ohio	4	....
Oregon Teachers' Monthly, Salem, Ore. ....	....	4
Oregon, Medford Commercial Club, Medford, Ore. ....	....	6
Pacific Horticultural Correspondence School, Orence, Ore...	....	22
Pennsylvania State Library, Harrisburg, Penn.	4	20
Philippine Islands, Bureau of Agriculture, Manila, P. I. ....	....	7
Philippine Islands, Bureau of Forestry, Manila, P. I. ....	....	17
Philippine Islands, Bureau of Public Instruction, Manila, P. I. ....	....	90
Phillips, Miss Edith, Berkeley, Cal.	2	9
Philipps, H. B., Berkeley, Cal.	83	....
Roeding, Geo. C., Fresno, Cal. ....	....	1060
Smith, Mrs. E. H., Sisquoc, Cal. ....	....	248
South Africa, Department of Agriculture, Salisbury, Rhodesia .....	....	59
South Africa, Department of Agriculture, Pretoria, S. A....	....	101
South Africa, Superintendent of Printing, Natal	16	9
Texas Department of Agriculture, Austin, Tex. ....	....	15
U. S. Department of Agriculture (B. A. I., O. E. S., Library, B. P. I., Solicitor, Weather Bureau), Washington, D. C.	68	1420
U. S. Department of the Interior (Dept. of Commerce, Geol. Survey, Bur. of Educ.), Washington, D. C.	8	47
U. S. Department of the Treasury (Public Health), Wash- ington, D. C. ....	....	229
Utah State Dairy and Food Commissioner, Salt Lake City, Utah .....	....	2
Vulcanite Portland Cement Company, New York City .....	....	7
Washington State Library, Olympia, Wash.	1	15
West Indies. Imperial Department of Agriculture, Barbados, West Indies .....	....	17
West Virginia, Department of Agriculture, Charleston, West Va. ....	....	9
Wickson, E. J., Berkeley, Cal.	68	5048
Woodworth, L. A., Berkeley, Cal.	1	....

GIFTS TO THE HERBARIUM, BOTANICAL MUSEUM, AND
BOTANICAL GARDEN

TO THE HERBARIUM

- Anonymous, 124 sheets of Argentine plants purchased of Sr. Pedro Jorgensen, Andalgalá, Argentina, and presented to the Herbarium by a friend.
- Baade, H. J., County Farm Adviser, Napa, 1 specimen of unicorn plant.
- Babcock, Professor E. B., University of California, 51 sheets of forms of *Hemizonia rudis* prepared from plants grown in the Botanic Garden and 6 sheets of plants from Tiburon, also 2 sheets of *Juglans Hindsii* var. *quercinifolia*.
- Bettys, Mrs. J. A., Sanger, 2 sheets of cryptogams.
- Bishop, Roy K., '00, County Horticultural Commissioner, Santa Ana, 4 sheets *Sonchus arvensis*.
- Brandeggee, Mr. and Mrs. T. S., University of California, 300 sheets of plants, mostly from the desert area of California and Nevada. (See also under Dr. C. A. Purpus.)
- Brandt, Dr. R. P., '12, Gualala, 1 sheet of *Cupressus Goveniana* and 3 of *Trillium ovatum*.
- Braunton, Ernest, Los Angeles, a collection of 49 plants gathered by Mrs. E. Wassell on the Yukon River in 1905.
- Burlew, Fred E., Los Angeles, 4 sheets of rare plants from the top of Mount San Antonio, Southern California.
- Chace, F. C., Aden, Modoc County, 2 sheets of *Euphorbia*.
- Clausen, C. P., University of California, 25 sheets of marine algae from near Nagasaki, Japan.
- Clemens, Mrs. M., Monterey, 1 sheet of *Montia Chamissoi*.
- Clements, Professor and Mrs. F. E., University of Minnesota, 200 sheets of plants from Southern California, selected to illustrate ecologic forms.
- Collins, F. S., North Eastham, Massachusetts, 1 sheet of *Trifolium* introduced on Cape Cod, and 10 sheets of marine algae.
- Crawford, Professor D. L., Pomona College, Claremont, 33 sheets of phaenogams.
- Davidson, Dr. A., Los Angeles, 2 sheets of type material of *Draba vestita* and *Allium Burlewii*; also 1 sheet of *Lessingia* from the San Bernardino Mountains.
- De Vries, Professor Hugo, Botanic Garden, Amsterdam, Holland, 2 sheets of *Robinia Pseudacacia monophylla* De Vries.
- Farlow, Dr. W. G., Harvard University, 78 sheets of marine algae.
- Gardner, Professor N. L., University of California, 5 sheets of marine algae from Monterey Bay, Land's End, and Santa Catalina Island.
- Gilman, M. French, Fort Bidwell, Modoc County, 151 sheets of phaenogams.

- Grant, Mrs. Adele Lewis, '02, Columbia, 10 sheets of *Brodiaea* collected in Tuolumne County.
- Hall, Professor and Mrs. H. M., University of California, 1174 sheets of California plants, including 16 sets for the University distribution, mostly from San Benito and Monterey counties.
- Hart, Frank J., Los Angeles, 2 sheets of *Masa indica*.
- Jenney, Charles E., Fresno, 1 sheet of *Cyperus esculentus*.
- Jones, Miss K. D., University of California, 61 sheets of economic plants.
- Jones, M. E., Salt Lake City, Utah, 1 specimen from the type of *Zygadenus Fremontii* var. *brevibracteatus*.
- Jones, Wyatt W., Salt Lake City, Utah, 25 sheets of phaenogams.
- Kennedy, Professor P. B., University of California, 2 photographs of *Absinthium* grown in Nevada, and 1 sheet of *Madiola multiceps* collected by A. M. Johnston at Los Banos.
- Kroeber, Professor A. L., University of California, 1 sheet of *Nicotiana attenuata* from the Zuñi Indians.
- Labouchere, Theodore, Pasadena, 4 rare specimens from the high Sierra Nevada.
- Missouri Botanical Garden, kindness of Dr. J. M. Greenman, 2 specimens *Geocarpum minimum*, one of them from the type collection.
- Moxley, George L., Los Angeles, 8 compositae from the Sierra Nevada, 2 sheets of *Zauschneria*, and 1 photograph of *Zauschneria glandulosa*.
- Noddin, Ralph E., '12, Los Gatos, 3 sheets of *Lotus* from San Mateo County.
- Parish, S. B., San Bernardino, 278 sheets of phaenogamous plants from the Mojave Desert region and 6 other plants.
- Philippine Board, P. P. I. E., Manila, P. I., kindness of Professor Leon M. Guerrero, 209 sheets of Philippine plants.
- Purpus, Dr. C. A., University of California, 361 sheets of Mexican plants, determined by T. S. Brandegees.
- Richter, M. C., '09, University of California, 30 sheets of plants from Chile.
- Rolph, C. J., '19, Chicago Park, Nevada County, 1 sheet of *Calochortus Benthami*.
- Rose, Mrs. C. F., Carville, Trinity County, 1 sheet of *Fritillaria* and 1 of fruits of *Oenothera*.
- Rosenbaum, Lewis C., '17, Berkeley, 83 sheets of phaenogamous plants from Oregon and Washington.
- Smith, Professor R. E., University of California, 1 specimen of rust (on *Baccharis pilularis*).
- Stearn, Mrs. L. H., Berkeley, 1 sheet of rose (teratological specimen).
- Stevens, Professor R. T., University of California, 1 sheet of *Washingtonia filifera*, and 1 of *Eucalyptus*.
- Swarth, Mrs. Winifred W., Berkeley, the type specimen of *Zauschneria glandulosa* Moxley.

- Tracy, Joseph P., '03, Eureka, 105 sheets from northwestern California.
- Turner, F. M., Mecca, 5 sheets *Alhaji* from the Colorado Desert.
- Tylor, A. R., '10, King City, 2 sheets of herbarium specimens and 1 bottle of berries.
- Valentien, A. R., San Diego, 1 sheet of *Pedicularis densiflora* representing a peculiar color variation.
- Walker, Miss H. A., University of California, 23 sheets of economic plants and 80 sheets of duplicate phænogams.
- Yates, Dr. Harry S., '12, Bureau of Science, Manila, P. I., 544 sheets of phænogams, 248 of which were collected in the Trinity Forest in 1914.
- Young, Mrs. B. K., El Portal, 1 sheet of *Ranunculus hystriculus*.
- (Total number of specimens received by gift from July 1, 1915, to June 30, 1916, for the Herbarium, 4093.)

TO THE BOTANICAL MUSEUM

- Barber, J. H., Livermore, 1 specimen of fungus.
- Bolster, F. H., Grass Valley, 3 specimens of fungi.
- Bradshaw, T. D., Hughson, 2 specimens of *Datura*.
- Brandt, Dr. R. P., '12, Gualala, 2 cones of *Pinus Lambertiana* from Gualala; 7 specimens of fungi, and a section of wood and cones of *Cupressus Goveniana*.
- Brown, V. S., '15, U. S. Forest Service, 2 specimens of fungi.
- Burt, E. A., Missouri Botanical Garden, 2 sheets of fungi.
- Butters, Professor F. K., University of Minnesota, 1 specimen of truffle (*Tuber Lyoni*).
- Clausen, C. P., University of California, 1 specimen of fungus.
- Courvoisier, Guthrie, Berkeley, 1 specimen of fungus.
- Ebner, A. B., Los Angeles, 1 specimen of fungus.
- Fawcett, H. S., Pasadena, 1 specimen of fungus.
- Gardner, Professor N. L., University of California, 3 specimens of fungi from Palo Alto, 20 specimens of *Battarrea* from Golden Gate Park, and 7 other fungi; also 1 specimen of *Araujia sericifera*.
- Gay, George C., Brawley, 1 sheet of *Ammobroma sonorae* collected by Mr. J. Tilley.
- Gibbs, P. E., Berkeley, 1 specimen of fungus.
- Goodspeed, Professor T. H., University of California, 2 specimens of fungi.
- Grant, Mrs. Adele Lewis, '02, Columbia, 1 branch of *Adenostoma fasciculatum* showing fasciation, and 2 specimens of *Quercus chrysolepis* from Tuolumne County.
- Hahn, G. G., '14, University of California, 1 specimen of fungus.
- Hall, Professor H. M., University of California, 6 cones of *Pinus ponderosa* and 2 cones of *Pinus Coulteri*, all from San Benito County; also 1 specimen of fungus.
- Hartmann, E., San Francisco, 1 specimen of fungus (*Lepiota rhacodes*).
- Hershey, Miss K. B., '05, University of California, 2 specimens of fungi.

- Hu, Hsen Hsu, '16, Nanchang, China, 11 specimens of fungi from the University Campus at Berkeley.
- Johnson, Professor D. S., Johns Hopkins University, Baltimore, Maryland, 1 jar of cactus material.
- Jones, S. L., San Francisco, 1 box of perilla nutlets (*Perilla ocymoides*).
- Marsh, A. M., Brawley, 1 specimen of fungus.
- Marston, Miss E., Berkeley, 1 specimen of fungus.
- Morrison, B. Y., '13, Washington, D. C., 1 specimen of *Cycas* from New Orleans.
- Nichols, H. S., Mendocino, 2 specimens of fungi.
- Rixford, G. P., San Francisco, 1 specimen of fungus.
- Seaver, Fred J., New York Botanical Garden, 2 species of *Tuber*.
- Setchell, Professor W. A., University of California, 10 specimens of fungi.
- Shuquist, C. W., University of California, 1 specimen of fungus from Fruitvale.
- Smith, L. S., '16, Berkeley, 4 specimens of fungi.
- Smith, Robert, Watsonville, 1 specimen of fungus.
- Walker, Miss H. A., University of California, 2 specimens of fungi.
- Wores, Miss L., Point Reyes Station, 1 specimen of fungus.
- (Total number of specimens received by gift from July 1, 1915, to June 30, 1916, for the Botanical Museum, 116.)

TO THE BOTANICAL GARDEN

- Babcock, Mrs. E. B., Berkeley, 4 packets of seeds of *Madia elegans*.
- Brandeggee, Mrs. T. S., University of California, 1 packet of seeds of *Lupinus perennis*.
- Carrano, Benito J., Jardin Botanico, Buenos Ayres, 45 packets of seeds.
- Gates, Professor R. R., University of California, 1 packet of seeds of *Oenothera Hewittii*.
- Hall, Professor H. M., University of California, 19 packets of seeds; also live plants of *Cotyledon laxa* from Pacheco Pass.
- Jepson, Professor W. L., University of California, 1 packet of seeds of *Eriodictyon Parryi*.
- Kennedy, Professor P. B., University of California, living rootstocks of an Oregon fern (liquorice fern), and 1 packet of seeds.
- Pere, George V., "La Quinta," Santa Ursula, Tenerife, 1 packet of seeds of *Sonchus arboreus*.
- Setchell, Professor W. A., University of California, 3 packets of seeds of *Nicotiana*.
- Shinn, George E., Petaluma, 1 packet of seeds of *Hosackia Torreyi*.
- Walker, Miss H. A., University of California, 1 packet of seeds of *Holocarpa macradenia* and 3 of *Hemizonia angustifolia*.
- (Total number of specimens received by gift from July 1, 1915, to June 30, 1916, for the Botanical Garden, 83. Grand total of donations to the department between these dates, 4292.)

GIFTS TO THE DEPARTMENT OF CIVIL ENGINEERING

(November 1, 1915, to November 1, 1916.)

Contra Costa Building Materials Company, cement.

Etcheverry, Professor B. A., enlarged photographs of irrigation works.

Griswold, H. S., engineering periodicals.

Holmes, Howard C., a bound set of dry dock plans and specifications
Hunter's Point.

Keuffel & Esser Company, large framed picture of surveying instruments.

National Meter Company, one demonstration meter.

O'Shaughnessy, M. M., specifications, drawings and profiles for the Hetch
Hetchy Railroad.

Pacific Foundry Company, one corros-iron test pot.

Pratt Building Materials Company, museum specimens.

U. S. Steel Products Company, plans of engineering structures and plans
of Old River bridge, San Joaquin County.

GIFTS TO THE DEPARTMENT OF ZOOLOGY, 1915-16

Barrett, Mrs. L. M., Berkeley, specimens of pelican, kingfisher, black-
crowned night heron, grouse, horned owl, young quail, blue jay, nut-
hatch, prairie dog, and raccoon.

Barrows, Professor David P., Berkeley, hydroid from Samoa.

Bureau of Animal Industry, Washington, D. C.: *Stephanurus dentatus*;
Cysticercus; *Gongylonema sentatum*; *Bunostomum phlebotomum*; *Fas-
ciola hepatica*; *Ancylostoma* sp.; *Belascaris marginata*; *Boophilus annu-
latus*; *Paramphistomum cervi*; *Melophagus avinus*; *Gigantorhynchus
hirudi naceus*; *Ascaris suum*; *Taenia ovis*; *Taenia saginata*; *Trichuris
depressiusculus*; *Dictyocaulus viviparus*; *Gastrophilus equi*, larvae;
Haematopinus suis; *Strongylus vulgaris*; *Haemonchus contortus*.Bureau of Fisheries, Panama-Pacific International Exposition, San Fran-
cisco, 13 specimens of sharks.Chinese Commission, Panama-Pacific International Exposition, San Fran-
cisco, 80 jars of specimens of Chinese fish.

Cowan, Dr. A. B., Fresno, 1 human embryo.

Crab, Mrs., Akutan Island, Alaska, barnacles on a crab.

Dozier, Dr. L., Stockton, 1 human embryo.

Hawaiian Commission, Panama-Pacific International Exposition, San
Francisco, 320 fish from the Hawaiian Islands.

Holmes, Dr. S. J., Berkeley, 1 mole skeleton from Sonoma, Cal.

Hutchins, H. H., Pasadena, 1 scorpion.

Japanese Commission, Panama-Pacific International Exposition, San
Francisco, 2 sets of shells showing the life-history of the pearl oyster;
23 jars, 1 chart showing Mendelian inheritance in silk-worm larvae.

- Jacobsen, W. C., Berkeley, 2 coyote skulls.
Joy, E. W., San Francisco, 1 lizard.
Mills, Ralph G., Seoul, Korea, 2 vials *Paragonimus westermanni* and *Clonorchis sinensis*.
Nielson, Niel (Trade Commissioner for New South Wales Australia), San Francisco, mounted specimens of emu and kangaroo.
Norwood, Mrs. C., Berkeley, 1 moth.
Oldroyd, Mrs. I. S., Long Beach, collection of 638 shells from the coast of Southern California.
Philippine Commission, Panama-Pacific International Exposition, San Francisco, 12 window pearl shells.
Quayle, H. J., Riverside, 1 vial slugs, *Ariolimax agrestis*.
Rusk, Dr. G. Y., Berkeley, 1 vial *Strongyloides intestinalis*.
Smith, B. G., Ypsilanti, Michigan, 1 vial *Pleodorina californica*.
Spring Valley Water Company, San Francisco, 288 jars of fresh water plankton.
Stone, George, Berkeley, 1 jar blister pearls in abalone, 1 bottle larvae of syrphid fly, 10 quart jars of miscellaneous zoological specimens collected on the Salisbury Expedition, 1 hammer-head shark, 2 specimens reptiles, 13 vials plankton, 1 alcoholic specimen of an ant-eater in advanced pregnancy.
Sugarman, E. I., San Francisco, 1 vial hookworms.
United States Bureau of Forestry, San Francisco, 1 vial *Sphaeroma pentodon* Richardson, specimens of wood borings from piling.
Westwood, Mr., Berkeley, 1 four-legged chicken.
White, F. N., Stevenson, Washington, 1 thread-worm.
Whitney, Mrs., Berkeley, 2 hatching snake eggs.

GIFTS TO THE CALIFORNIA MUSEUM OF VERTEBRATE ZOOLOGY

(July 1, 1915, to June 30, 1916.)

NOTE.—This list does not include specimens secured by collectors regularly employed from the fund provided by Miss Annie M. Alexander for maintenance of the Museum, nor does it include a number of accessions received by purchase out of the same fund.

The term "mammal" as here used ordinarily means a dry study-skin plus the cleaned skull belonging to the same individual, not infrequently a complete skeleton, and sometimes the entire animal preserved in alcohol. A "bird" is usually a dry study-skin, sometimes a partial or complete skeleton. A "set of eggs" is the total number of eggs found in a single bird's nest, often accompanied by the nest itself. A "reptile" or "amphibian" is the entire animal preserved in alcohol.

- Alexander, Miss Annie M., 5 aplodontias (*Aplodontia*), 1 flying squirrel (*Glaucomys*), from Salmon Lake, Sierra County, California; 5 mink (*Mustela*), from Grizzly Island and Joyce Island, Solano County, California; 1 river otter (*Lutra c. brevipilosus*), from Joyce Island, Solano County, California; 1 Suisun song sparrow (*Melospiza m. maxillaris*), from Suisun, Solano County, California.
- Allen, Mrs. A. S., 11 birds, from Berkeley.
- Bair, F., and Fearrien, A., skull of black bear (*Ursus altifrontalis*), from Boulder Creek, Humboldt County, California.
- Beardsley, R. L., 28 amphibians (*Batrachoseps* and *Plethodon*), from Tule River basin, Tulare County, California.
- Bingmann, A. C., 2 foreign birds.
- Bolander, L. P., 2 flickers (*Colaptes*), from Point Reyes, Marin County, and Brentwood, Contra Costa County, California; 2 red-throated loons (*Gavia stellata*), from White House Pool near Tomales Bay, Marin County, California.
- Boucher, C. S., 1 ruffed grouse (*Bonasa u. umbellus*), wings of American merganser (*Mergus americanus*), from near Smith River, Del Norte County, California.
- Bruce, J. C., 1 skull of mountain lion (*Felis*), from near Wawoma, Mariposa County, California.
- Bryant, Dr. H. C., 2 ruffed grouse (*Bonasa u. umbellus*), from Crescent City, Del Norte County, California; 1 mountain quail (*Oreortyx picta*), from Calistoga, Napa County, California; 1 mole (*Scapanus*), from Mill Valley, Marin County, California; 2 horned lizards (*Phrynosoma b. frontale*), from Lyndon, Santa Clara County, California.
- Bryant, V. C., 1 pileated woodpecker (*Phloeotomus p. abieticola*), from Lakeport, Lake County, California.
- Bunnell, Dr. S., 1 red-tailed hawk (*Buteo b. calurus*), from Mono Lake, Mono County, California.
- California Fish and Game Commission, 48 birds (*Planesticus* and *Colaptes*), from Berkeley hills, Alameda County, California; head of doe (*Odocoileus c. scaphiotus*), and two fetuses, from San Gregorio, San Mateo County, California.
- Carriger, H. W., 11 birds, from Eldorado and Mono counties, California, and Nevada and Illinois.
- Chamberlain, W. J., 1 golden-crowned sparrow (*Zonotrichia coronata*), from Mt. Shasta, California.
- Christensen, J., 1 skull of beaver (*Castor*), from Cache Slough, Solano County, California.
- Clarke, F. C., 1 sparrowhawk (*Falco sparverius*), 1 raven (*Corvus c. sinuatus*), 1 golden eagle (*Aquila chrysaetos*), 6 skeletons of birds, 1 skin of deer with antler (*Odocoileus columbianus*), 1 western red bat (*Nycteris b. teliotis*), all from Laytonville, Mendocino County, California.

- May, C. I., 5 birds, from Humboldt and Trinity counties, California.
- Mourtwright, G. W., 1 prong-horned antelope (*Antilocapra americana*), from near Alturas, California.
- Nice, Dr. L. R., 3 bats (*Myotis*), from Prescott, Walla Walla County, Washington.
- Dirks, W. N., 1 shrew (*Sorex californicus*), from Hayward, Alameda County, California; 3 ducks (*Chaulelasmus streperus* and *Dendrocygna bicolor*), from Mendota, Fresno County, California; 4 downy young pied-billed grebes (*Podilymbus podiceps*), from near Alvarado, Alameda County, California; 4 downy young shovellers (*Spatula clypeata*).
- Dixon, J., 5 birds, nest and eggs of western savannah sparrow, 1 mammal skeleton, from Escondido, San Diego County, California.
- Duncan, G. F., 1 lizard (*Coleonyx variegatus*), from Jean, Clark County, Nevada.
- Emmerson, W. H., 1 California pigmy owl (*Glaucidium g. californicum*), from El Portal, Mariposa County, California.
- Ferris, G. F., 1 bat (*Myotis evotis*), from Saratoga, Santa Clara County, California; 1 amphibian (*Scaphiopus h. hammondi*), from Mono Lake, Mono County, California.
- Gallo, C. A., 1 hoary bat (*Nycteris cinerea*), from Snelling, Merced County, California.
- Gault, B. T., skeleton of prairie chicken (*Tympanuchus americanus*), from Glen Ellyn, Illinois.
- Green, C. de B., 1 Peale falcon (*Falco p. pealei*), and set of eggs of same, from Queen Charlotte Islands, British Columbia.
- Grey, J., 1 snake (*Sonora episcopa*), from Heber, Imperial County, California.
- Grinnell, Mrs. H. W., 4 mammals (*Glaucomyss*, *Marmota*, *Myotis*), 1 reptile (*Lampropeltis*), from Yosemite Valley and Tuolumne Meadows, Yosemite National Park, California.
- Hanna, W. C., nest and eggs of white-throated swift (*Aeronautes melano-leucus*), 1 banded gecko (*Coleonyx variegatus*), from near Colton, San Bernardino County, California.
- Hansen, H. E., 1 weasel (*Mustela*), nest of Anna hummingbird with two young, 1 sharp-shinned hawk (*Accipiter velox*), nest of western robin (*Planesticus m. propinquus*), from Golden Gate Park, San Francisco, California.
- Harshe, R. B., 1 opossum (*Didelphis virginiana*), from Kentucky.
- Heger, R. H., 16 foreign birds.
- Herring, F. D., 21 gophers (*Thomomys*), from near Castle Rock, Santa Cruz Mountains, California.
- Holden, Mrs. F. H., 4 bats (*Nycteris b. teliotis*), from Stockton, San Joaquin County, California.
- Holden, F. H., 1 shrew and 1 skeleton of shrew (*Sorex californicus*), from Berkeley, Alameda County, California.

- Holmes, W. A., 1 shrew (*Sorex californicus*), from Sunnyvale, Santa Clara County, California.
- Jewett, S. G., 10 white-footed mice (*Peromyscus m. rubidus*), 5 shrew (*Sorex v. vagrans*), from Portland, Oregon.
- LeRoi, J. E., 1 mole (*Scapanus l. latimanus*), from the campus, University of California.
- McLean, D. D., 1 California mud turtle (*Clemmys marmorata*), from near Coulterville, Mariposa County, California; 1 bat (*Myotis californicus*) from Smith Creek, Mariposa County, California.
- McNair, J. B., 1 gopher snake (*Pituophis catenifer*), from San Pablo Valley, Contra Costa County, California.
- Merrill, G. P., 1 snowshoe rabbit (*Lepus w. klamathensis*), from near Woodfords, Alpine County, California.
- Merrill, Mrs. M., 1 calliope hummingbird (*Stellula calliope*), from Woodfords, Alpine County, California.
- Metson, W. H., 2 white-tailed jackrabbits (*Lepus c. sierrae*), from near Summers Meadow, Mono County, California.
- Moznette, G. F., 45 birds, from Corvallis, Oregon.
- Neale, G., 1 emperor goose (*Philacte canagica*), from West Butte, Sutter County, California; 1 gull (*Larus*), from near Knights Landing, Yolo County, California; 1 whistling swan (*Olor columbianus*).
- Newhall, Mrs. C. S., 1 horned toad (*Phrynosoma b. frontale*), from Berkeley, Alameda County, California.
- Noack, H. R., 1 albino English sparrow, from San Francisco, California; nest of orange bishop weaver, 2 foreign birds.
- Pemberton, J. R., 9 mammals, 10 separate skulls of mammals, from Argentine Republic; 7 mammals, from Monterey and Santa Clara counties, California.
- Physiology Department, University of California, 2 skunks (*Spilogale phenax*), from the campus, University of California.
- Prescott, H. S., 1 aplodontia (*Aplodontia*), 1 woodrat (*Neotoma*), 1 gadwall (*Chaulelasmus streperus*), from Del Norte County, California.
- Rankin, E. P., 1 golden-crowned sparrow (*Zonotrichia coronata*), from fourteen miles west Columbia River, Pacific Ocean.
- Riley, J. H., 11 mammals, from Falls Church, Virginia.
- Robison Bros., 6 foreign birds.
- Rowley, J., 6 Sierra grouse (*Dendragapus o. sierrae*), from Comstock Ridge, Fresno County, California; 1 flying squirrel (*Glaucomys*), from Dos Rios, Mendocino County, California; 11 mammals, from Kansas and Oklahoma.
- Royar, M. L., 1 rattlesnake (*Crotalis lucifer*), from Avalon, Santa Catalina Island, California.
- Schlisinger, Mrs. Jane L., 1 red bat (*Nycteris b. teliotis*), from Berkeley, Alameda County, California.

- Scott, M. I., 1 kangaroo rat (*Dipodomys californicus*), from near Suisun, Solano County, California.
- Sharpstein, J. R., 1 bat (*Nyctinomus mexicanus*), from Alameda, Alameda County, California.
- Smith, C. W., 1 shed skin of gopher snake (*Pituophis catenifer*), from Sacramento Valley, California.
- Smith, F. J., 1 red-winged blackbird (*Agelaius*), 1 American scoter (*Oidemia americana*), 1 downy young petrel (*Oceanodroma leucorhoa*), 2 western bluebirds (*Sialia m. occidentalis*), from Eureka, Humboldt County, California.
- Sonman, G., 1 snake (*Bascanion*), 1 raccoon (*Procyon psora*), from the campus, University of California.
- State Board of Health, anti-rabies campaign, through Professor Wilbur A. Sawyer and Dr. E. T. Ross and Messrs. G. M. Kemble and L. W. Hunsinger, 111 skulls of coyote, 4 skulls of badger, 11 skulls of wild-cat, 1 skull of porcupine, from Lassen and Modoc counties, California, and from Roop, Nevada.
- Stone, G. E., 3 skulls of mammals, from Port Limon, Costa Rica, and Gatun Lake, Panama; 8 crania and 6 mandibles of Delphinidae, from Cape Hatteras, east coast of United States.
- Sumner, Dr. F. B., 11 shrews (*Sorex pacificus*), from Eureka, Humboldt County, California; 49 mice (some skeletons only) (*Peromyscus Perognathus*, *Zapus*), from Del Norte, Santa Cruz and Inyo counties, California.
- Swarth, H. S., 37 mammals, 1 LeConte thrasher (*Toxostoma lecontei*) with nest and eggs, from Palm Springs, Riverside County, California.
- U. S. Public Health Service, anti-rabies campaign, through Mr. W. O. Deal, 3 skulls of coyote, 5 skulls of bobcat, from Plumas Junction, Plumas County California.
- Wear, Miss W. N., 1 pocket mouse (*Perognathus l. longimembris*), from Fresno County, California.
- Wheeler, Mrs. J. W., 2 inca doves (*Scardafella inca*), from Tucson, Arizona; 2 peccaries (*Pecari a. sonoriensis*), from vicinity of Tucson, Arizona.
- Wiley, L., 8 stomachs of birds, 1 bat (*Corynorhinus m. pallascens*), 1 chuck-walla (*Sauromelas ater*), from vicinity of Palo Verde, Imperial County, California.
- Willett, G., 2 ring-tailed cats (*Bassariscus*), from Roosevelt, Arizona.
- Williams, W. H., 1 desert tortoise (*Testudo agassizii*), and 3 Blainville horned toads (*Phrynosoma blainvillii*), from Victorville, San Bernardino County, California.
- Woodworth, C. W., 1 lizard (*Eumeces skiltonianus*), from La Panza, San Luis Obispo County, California.
- Wright, C., Jr., 1 foreign bird.

LECTURES AND ADDRESSES

SUMMER SESSION, 1915

ANTHROPOLOGY LECTURES

(Delivered on Sunday afternoons at the Museum of Anthropology,
Affiliated Colleges, San Francisco.)

E. W. Gifford, Associate Curator of the University Museum of Anthropology:

June 20—The Increase of the Race.

June 27—The Cult of the Dead.

July 4—Germany (illustrated).

July 11—France (illustrated).

July 18—Austria-Hungary (illustrated).

July 25—Great Britain.

August 1—Our Relatives.

Dr. William F. Ogburn, Professor of Sociology in Reed College, Portland, Oregon:

August 8—How a Knowledge of Primitive Man Helps us in our Daily Problems.

CARNEGIE PEACE LECTURES

George M. Stratton, Professor of Psychology on the Mills Foundation:

June 21—The External Occasions of Fighting.

June 23—The Inner Sources of Combativeness.

June 25—The Psychic Condition of Hostility.

July 2—Fighting Among Savages.

July 7—Psychology of the War Spirit: Significant Changes Among Leading Peoples.

July 9—Psychology of the War Spirit: The Present Quality of Warfare.

July 12—Warfare and the Great Interests: Commerce and Science.

July 14—Warfare and the Great Interests: Morality.

July 16—Warfare and the Great Interests.

July 19—Methods of Control in War: The Principles of Cure.

- July 21—Methods of Control in War: The Needed Discipline of Feeling and of Judgment.
- July 23—Methods of Control in War: The Present Incitements to War.
- July 26—Methods of Control in War: Peace Projects and Present Attainments.
- July 28—Methods of Control in War: The Need of International Institutions.
- July 30—Methods of Control in War: The Treatment of the Hopelessly Warlike.

COUNTRY LIFE LECTURES

(Illustrated)

O. J. Kern, Assistant Professor of Agricultural Education:

- June 28—The Human or Social Value of Agricultural Material in Country Life Education.
- July 5—Education by Means of Nature Study and Agriculture.
- July 12—Play and Recreation in Country Life Education.
- July 19—School and Home Sanitation and Decoration, Rural Libraries, etc.
- July 26—The Real American Rural Folk School.

LECTURES ON THE ART OF THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION

Eugen Neuhaus, Assistant Professor of Decorative Design:

- June 21—The Architectural Plan, the Setting, and the Style.
- June 23—The Decorative Statuary; the Fountains.
- June 28—Other Decorative Statuary.
- June 30—The Color Scheme.
- July 2—The Mural Decorations.
- July 7—Scope and Significance of the Fine Arts Exhibit.
- July 9—A Survey of the Foreign Sections.
- July 12—A Survey of the Foreign Sections: France and Italy.
- July 14—A Survey of the Foreign Sections: Japan and China.
- July 16—A Survey of the Foreign Sections: Other Foreign Nations.
- July 19 and 21—American Portrait and Figure Painters.
- July 23—Modern American Landscape Painters.
- July 26—The Marine Painters.
- July 28—The Nude in Art.
- July 30—The Sculpture.

ARCHAEOLOGY LECTURES

O. M. Washburn, Assistant Professor of Classical Archaeology:

- August 24—The Land of Greece (illustrated).
- August 31—Ancient Life in Modern Greece (illustrated).
- September 7—The Greek House (illustrated).
- September 14—Greek Furniture (illustrated).
- September 28—Greek Meals (illustrated).
- October 5—Greek Dress (illustrated).
- October 12—Greek Education (illustrated).
- October 19—Greek Games (illustrated).
- November 2—Greek Games (illustrated).
- November 9—Greek Warfare (illustrated).
- November 16—Greek Ships.
- November 23—A Doctor's Death and Burial (illustrated).
- November 30—Trades and Professions.

FRENCH LECTURES

Gilbert Chinard, Professor of French:

- June 24—Maurice Maeterlinck.
- July 1—Anatole France.
- July 8—Paul Hervieu.
- July 15—Emile Faguet.
- July 22—E. Lavissee
- July 29—Maurice Barrès.

MISCELLANEOUS LECTURES

Dr. Meyer Bloomfield, of Boston:

- July 25—Vocational Guidance.

Professor Don Rafael Altamira y Crevea, of the University of Madrid, Spain; Spanish Delegate to the Panama-Pacific Historical Congress:

- July 30—El Americanísimo en España.

Dr. Ira B. Cross, Assistant Professor of Economics:

- July 30—Conditions in California Prisons (illustrated).

Dr. David Starr Jordan, Chancellor of Leland Stanford Junior University:

- July 16—The Way to Lasting Peace.

C. Hart Merriam, Representative of the National Association of Audubon Societies:

- July 6—Birds and their Relations to Man (illustrated).
- July 7—Mammals: Principal Groups and Economic Relations (illustrated).
- July 8—Distribution and Migration of Birds and Mammals (illustrated).
- July 9—Protective Colorations and Other Adaptations of Birds and Mammals (illustrated).

Dr. Kuno Meyer, Professor of Celtic in the University of Berlin:

July 15—The Races and Languages of Great Britain and Ireland.

July 19—Ancient Irish Poetry.

Professor Adolfo Bonilla y San Martín, of the University of Madrid, Spain:

July 27—Velaquez y El Greco (illustrated).

July 29—La Guerra como Fuerza social (illustrated).

ACADEMIC YEAR, 1915-16

ANTHROPOLOGY LECTURES

(Delivered on Sunday afternoons at the Museum of Anthropology,
Affiliated Colleges, San Francisco.)

A. J. Eddy, Assistant in Military Science and Major of the University
Cadet Corps:

October 3—Military Instruction in Our Schools and Colleges.

E. W. Gifford, Associate Curator of the University Museum of Anthro-
pology:

August 22—Our Relatives—What We Call Them and What Others
Call Them.

August 29—The Nations of the World.

November 7—The Prehistory of the San Francisco Bay Region.

November 14—The Prehistory of the Santa Barbara Islands.

January 23—The San Francisco Bay Shellmounds.

January 30—The Maidu Indians of the Sacramento Valley.

February 6—Indians of Central California.

February 20—Indian Cultures of Northwestern California.

February 27—Indian Cultures of the Santa Barbara Region of
California.

March 5—The Culture of the Indians of Southern California.

March 12—Indian Cultures in California as a Whole.

March 19—The Religion of the California Indians: Burial Customs.

March 26—The Religion of the California Indians: Mourning Cere-
monies.

April 2—The Religion of the California Indians: Adolescence Cere-
monies.

April 9—The Religion of the California Indians: Spirit Ceremonies.

April 16—The Religion of the California Indians: Shamanism.

April 23—The Creation and Destruction of the World.

April 30—The Religion of the California Indians: Mythology.

May 7—The Egyptian Collection.

May 14—The Alaska Indian Collection.

May 21—The Indians of the Great Plains.

May 28—The Peruvian Collection.

June 4—The Pacific Island Collection.

June 18—The Museum's Collections.

Dr. Robert H. Lowrie, of the American Museum of Natural History, New York:

August 15—Life Among the Plains Indians.

Dr. Paul Radin, Secretary of the Southwestern Anthropological Society:

September 12—Spirits and Deities of the North American Indians.

September 19—The Religion of the North American Indians: Fast-ing and Guardian Spirits.

September 26—The Religion of the North American Indians: Magi-cal Practices.

J. Marius Scammell, Teaching Fellow in Anthropology:

October 10—Greek Military Tactics.

October 17—The Byzantine Army.

Dr. Richard Thürnwald, of the Museum of Ethnology of Berlin:

December 9—Life in New Guinea.

January 16—Laben in New Guinea.

February 13—Reisen auf den Salomo—in Inseln.

W. D. Wallis, Instructor in Anthropology:

October 24—Messianic Religions.

O. M. Washburn, Assistant Professor of Classical Archaeology:

June 11—The Greek and Etruscan Collections.

Dr. T. T. Waterman, Assistant Professor of Anthropology:

October 31—The Missing Link between Man and the Apes.

November 21—The Prehistory of the Humboldt Bay Region.

June 25—California Indian Collections in the Museum.

ART LECTURES

(Omitted from report of 1914-15.)

Eugen Neuhaus, Assistant Professor of Decorative Design:

January 27—The Architecture of the Exposition.

February 3—The Decorative Sculpture of the Exposition.

February 10—The Mural Paintings of the Exposition.

February 17—Fine Arts at the Exposition.

February 24—The Foreign Section at the Exposition.

March 3—American Art at the Exposition.

(FOURTH) FACULTY RESEARCH LECTURE

Dr. F. P. Gay, Professor of Pathology:

March 23—The Contribution of Medical Science to Medical Art as Shown in the Study of Typhoid Fever.

FORESTRY CLUB LECTURES

- D. D. Wood, of the Philippine Forest Service:
September 15—Philippine Forests.
- D. Ballard, of Montana:
September 29—Logging in Montana.
- Dr. F. W. Foxworthy, Head of Forest School of the University of the Philippines:
October 15—Forestry in the Tropics.
- F. A. Wilcox, U. S. District Forester, Missoula, Montana:
October 27—Fire Protection.
- Geo. M. Cornwall, Editor "The Timberman," Portland, Oregon:
October 27—Origin of Pacific Logging Congress.
Moving pictures showing: Ranger's life on a National forest;
Sisson fire, 1914; Logging at McCloud River Lumber Co.
- A. E. Welch, Yosemite Lumber Co., Merced Falls, Cal.:
January 19—Forestry Club of University of Washington.
- Dr. E. P. Meinecke, U. S. Bureau of Plant Industry, San Francisco:
January 19—Forest Tree Diseases.
- Professor Joseph Bailie, University of Nanking, Nanking, China:
February 2—Reforestation in China.
- U. S. McMillan, California Redwood Association, San Francisco:
March 1—Utilization of Redwood.
- Carl Hartley, U. S. Bureau of Plant Industry, Washington, D. C.
March 28—Forest Nursery Diseases.
- Mark Daniels, former Superintendent of National Parks, San Francisco:
April 12—Moving picture lecture on National Parks.

GAS ENGINEERING LECTURES

- C. B. Babcock, Manager of the General Gas Light Company:
February 25—The Superiority of Gas Illumination.
- S. Waldo Coleman, President of the Coast Counties Gas and Electric Company:
March 10—Methods of Development of Public Utilities: 1. Financing, Incorporating and Enfranchising. 2. Construction, Operation and Business.
March 16—Methods of Development of Public Utilities: 3. Construction, Operation and Business.
- Mr. John A. Britton, Regent of the University and President of the Pacific Gas and Electric Company:
April 7—The Uses of Gas in the Industrial World.
- Mr. Van E. Britton, Assistant Engineer, Pacific Gas and Electric Company:
April 13—The Construction of Small Gas Plants.

F. C. Jones, Chief Chemist of the Pacific Gas and Electric Company:

April 21—The Chemistry of Gas Manufacture.

D. E. Keppelmann, General Superintendent of Gas Distribution of the Pacific Gas and Electric Company:

February 11—Oxy-Acetylene Welding of High Pressure Mains.

Paul Thelen, Assistant Engineer, Railroad Commission of the State of California:

April 6—The Valuation of Public Utilities with Special Reference to Gas and Electric Properties.

GREAT BOOKS LECTURES

Charles Mills Gayley, Professor of the English Language and Literature:

September 3—Ibsen: and a Discussion of One of his Plays.

September 10—The Dramas of Henrik Ibsen.

September 24—Ibsen: with a Discussion of One of his Plays.

October 1—Henrik Ibsen's "Ghosts."

October 8—Maeterlinck.

October 15—Maeterlinck.

October 22—Maeterlinck.

October 29—Maeterlinck, "The Sightless."

November 5—Maeterlinck, "The Blue Bird."

November 12—Maeterlinck, "The Blue Bird."

December 11—Maeterlinck.

GREEK LECTURES

J. T. Allen, Associate Professor of Greek:

October 13—Agamemnon of Aeschylus.

LECTURES ON JOURNALISM

John McNaught, of Sacramento:

February 9—Journalism and the University.

February 16—Journalism and the Newspaper.

February 23—The Ethics of Journalism.

LICK OBSERVATORY LECTURES

Astronomer H. D. Curtis:

March 15 and 16—Stellar Evolution, I.

March 17—Stellar Evolution, II.

Astronomer R. G. Aitken:

March 21 and 22—Binary Stars.

March 24 and 25—Star Clusters.

MINING LECTURES

- L. H. Duschak, Chemical Engineer with the U. S. Bureau of Mines:
April 11—Radium: Its Extraction from Carnotite.
April 13—Recent Developments in the Electrolytic Recovery of Zinc.
- C. W. Merrill: (Mr. Merrill's lectures were on the general subject, The Cyanide Process.)
March 6—Crushing Preparatory to Cyaniding.
March 7—Solution of Gold and Silver.
March 8—Filtration or Separation of Metal Bearing Solution from Ore Residue.
March 9—Precipitation (Historical).
March 10—Precipitation (Current Practice).
- F. H. Probert, Consulting Engineer and Mining Geologist: (Mr. Probert's lectures were on the general subject, Outcrops and the Zone of Oxidation.)
February 21—General presentation of the problems involved. Anatomy of the Earth's Crust. Physical forces at work.
February 23—Life history of the outcrop. Contributory causes to the constant change.
February 24—Chemical forces at work. The Migration of metals.
February 25—Significance of superficial signs. Varied types.
- T. A. Rickard, Editor of the "Mining and Scientific Press": (Mr. Rickard's lectures were on the general subject, Geology Applied to Mining.)
January 31—General view of the Subject, the Growth of the Economic Idea; Recent Theories of Enrichment; the Creation of a Gold Vein.
February 1—Fortuitous Discoveries. The Aid of Mineralogy. Elementary Inferences and the Application of them in Colorado, Nova Scotia, Australia.
February 2—The Structural Geology of Leadville. The Use of Geologic Maps. The Ore Deposits of Rico. Contacts and Verticals. Replacement Deposits of the Black Hills.
February 3—Frost as a Geologic Agent. The Discovery of the Klondike. Mining in the Yukon. The Geology of Bonanza Creek. Steam thawing. Coal Mining in Spitzbergen.
February 4—The Golden Sands of Nome. The Raised Beaches. The Romance of Mining. Conclusion.
- Professor L. E. Young, of the University of Illinois, formerly Director of the Rolla School of Mines:
January 11—Some Principles of Economics Applied to Mining.
January 11—The Economics of Shovelling.

January 12—Mining Bonds.

January 13—Some Principles of Economics Applied to Mining.

January 13—Profit Sharing in Mining.

MISCELLANEOUS LECTURES

Dr. David P. Barrows, Professor of Political Science and Dean of the Faculties:

November 10—Economic Conditions in Mexico.

Dr. E. K. Broadus, Head of the Department of English, University of Alberta:

August 25—The Origin and Growth of the Laureate Tradition.

August 31—The Court Poet in Early England.

September 2—The Development of the Office of Poet Laureate.

Dr. H. C. Bryant, Economic Ornithologist of the California Fish and Game Commission:

April 11—The Relation of Birds to Insects.

Dr. B. J. Cady, Veterinary Field Agent of the Bureau of Animal Industry:

January 19—Swine Raising and Swine Diseases.

H. T. Carrell, of the Solway Process Company:

October 27—A Description of the Alkali Industry; the Retort Coke Oven and its Products (illustrated).

Miss Mildred Leo Clemens, '15:

March 8—The Message of the Yosemite (illustrated).

J. H. Comstock, Professor Emeritus of Entomology in Cornell University:

March 29—The Habits of Spiders.

Ira B. Cross, Assistant Professor of Economics on the Flood Foundation:

September 14—Conditions in California Prisons (illustrated).

Dr. George H. Danton, Professor of German in Reed College, Portland, Oregon; Pacific Coast Field Agent of the Simplified Spelling Board:

March 28—Simplified Spelling.

Mark Daniels, '05:

April 12—The National Parks and the Sierras.

Dr. Danjo Ebina, Pastor of the Hongo Congregational Church, Tokio, Japan:

September 28—The New Significance of Democracy and Its Demands upon America and Japan.

Alfred Forke, Agassiz Professor of Oriental Languages and Literature:

November 4—Chinese Architecture.

November 11—Chinese Architecture.

G. W. Fishback, formerly of the United States Diplomatic and Consular Service:

January 11—Memorabilia of Expositions: Their Evolution and Development, from that at London in 1851 to the Panama-Pacific International Exposition in 1915.

Ernest J. Hopkins, Music and Drama Editor of the San Francisco "Bulletin":

April 27—Is Bacon Shakespeare?

William T. Hornaday, Director of the New York Zoological Park:

September 16—Shall We Increase our Big Game on a Food Supply Basis?

Dr. Benjamin Jablons, Director of the Laboratories of the St. Francis Hospital, San Francisco:

April 21—Emergency Medical Relief in War Time.

Dr. F. B. Laney, Geologist of the United States Bureau of Mines:

October 13—The Microscope in Chemical and Mineral Technology.

Dr. F. W. Lynch, Professor of Obstetrics and Gynecology:

March 16—The Trained Nurse—a Vocation for Women.

Dr. Kuno Meyer, Professor of Celtic at the University of Berlin:

February 18—Old Irish Prose Literature.

February 21—Old Irish Poetry.

Dr. W. W. Morrow, Judge of the United States Circuit Court of Appeals:

November 19—The Spoilers.

March 1—Spanish and Mexican Private Land Grants in the Territory ceded by Mexico.

Dr. Frederick Monsen, F.R.G.S.:

April 19—Turbulent Mexico.

Warren Olney, Sr., of the San Francisco Bar:

February 4—Lawyers and Judges I Have Known.

T. A. Rickard, Editor of the "Mining and Scientific Press":

March 24—The Miner as the Pioneer of Civilization.

C. Wharton Stork, Assistant Professor of English in the University of Pennsylvania:

April 24—The Life and Poetry of the Swedish Poet, Gustav Fröding.

J. W. Swaren, of the Pelton Water Wheel Company:

October 27—Hydraulic Engineering.

April 26—The Lake Spaulding Development of the Pacific Gas and Electric Company.

Hon. William Howard Taft, 27th President of the United States; Kent
Professor of Law in Yale University:

August 30 } The Presidency, Its Powers, Duties, Limitations,
September 1 and 3 } and Responsibilities.

Stephen S. Wise, founder of the New York Free Synagogue:

November 23—The Jew in American Universities.

PHILOSOPHICAL UNION LECTURES

Dr. George P. Adams, Assistant Professor of Philosophy:

August 27—Current Interpretations of Religion.

Professor J. W. Buckham, of the Pacific Theological Seminary:

September 24—Religion as Experience.

Professor Walter G. Everett, of Brown University:

April 28—Friedrich Nietzsche.

Dr. C. I. Lewis, Assistant Professor of Philosophy:

September 29—Religious Feeling and Religious Theory.

Dr. G. H. Palmer, Mills Lecturer in Philosophy:

March 31—The Puritan Home.

Dr. G. M. Stratton, Professor of Psychology on the Mills Foundation:

February 25—The Psychology of Mysticism.

PHILOSOPHY LECTURES

Dr. H. E. Cory, Assistant Professor of English:

January 28—The Sources of the Idea and Knowledge of God.

Dr. George H. Howison, Professor of Philosophy, Emeritus:

November 19—The Knowledge of Other Minds.

Professor Horace M. Kallen, of the University of Wisconsin:

August 31—The Growth and Significance of the Hebraic Tradition.

September 1—Hebraism and Democracy.

PHYSICS DEPARTMENT LECTURES

L. T. Jones, Instructor in Physics:

December 1—Electrical Discharges through Gases.

March 24—The Structure of Gamma Rays.

Dr. E. P. Lewis, Professor of Physics:

December 11—Phosphorescence and the Conductivity at the Temperature of Liquid Helium.

April 21—The Photoelectric Effect and Quantum Theory.

R. S. Minor, Associate Professor of Physics:

November 3—The Nature of Optical Images.

W. P. Roop, Instructor in Physics:

November 17—Water Waves.

March 10—Experimental Data on the Limitations of Carnot's Principles.

DEATHS OF MEMBERS OF THE UNIVERSITY

Eshleman, Hon. John Morton, Lieutenant-Governor of California, February 28, 1916.

Grant, Rufus M., Instructor in Carpentry, Wilmerding School of Industrial Arts, January 29, 1916.

Hilgard, Eugene Woldemar, Professor of Agriculture, Emeritus, January 8, 1916.

Hoffman, Lois, a Freshman in the College of Letters and Science, September 12, 1915.

Howard, Charles Samuel Harold, Instructor in Spanish, December 25, 1915.

McCracken, Isabelle McPherson, a Junior in the College of Social Sciences, April 14, 1915.

Putnam, Frederick William, Professor of Anthropology, Emeritus, August 14, 1915.

Rickard, Donald Kenneth, a Sophomore in the College of Mining, October 25, 1915.

Shaw, Wallace John, a Junior in the College of Dentistry, October 21, 1915.

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PUBLISHED WRITINGS OF OFFICERS OF THE UNIVERSITY

(July 1, 1915, to June 30, 1916)

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Preliminary Note on the Determination of the Position of the Moon by Photography. *Publ. of the Astron. Soc. of the Pacific*, vol. 27, no. 161, p. 221; Dec. 1915.

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Mystery God and Olympian God. *Harvard Theological Rev.*, vol. 9, no. 2, p. 201; Apr. 1916.

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ADAMS, R. L., Assistant Professor of Agronomy.

Can Dairying be made Profitable? *Pacific Rural Press*; Feb. 5, 1916.

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Cost of Barley Growing in California and Its Relation to Land Values. *Univ. Calif. Jour. of Agric.*, vol. 3, no. 4, p. 142; Dec. 1915.

Valuing Young Orchards. *Pacific Rural Press*; Apr. 15, 1916.

AITKEN, R. G., Astronomer in the Lick Observatory.

Address of the Retiring President of the Astronomical Society of the Pacific in awarding the Bruce Gold Medal to Dr. George Ellery Hale. *Publ. of the Astron. Soc. of the Pac.*, vol. 28, no. 162, p. 12; Feb. 1916.

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- Sierra Club Song. California Out-of-Doors, vol. 1, no. 12, p. 107; Dec. 1915.
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- ALLEN, J. T., Associate Professor of Greek.
- Greek Acting in the Fifth Century. Univ. Calif. Publ. in Class. Philology, vol. 2, no. 15, p. 279; Mar. 1916.
- ALTER, D., Instructor in Astronomy.
- Elements and Ephemeris of Comet *d* 1915 (Mellish) [with S. Einarsson]. Lick Observatory Bull., no. 273; Oct. 28, 1915.
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- Motor Functions of the Intestine from a New Point of View. Jour. of the Amer. Med. Assoc., vol. 65, p. 388; July 31, 1915.
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BAIRD, H. S., Instructor in Dairy Industry.

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BALDWIN, W. I., Instructor in Orthopedic Surgery.

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BARRETT, J. T., Professor of Plant Pathology, Graduate School of Tropical Agriculture.

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BARROWS, D. P., Dean of the Faculties; Professor of Political Science.

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BEACH, J. R., Assistant in Veterinary Science.

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- BIOLETTI, F. T., Professor of Viticulture.
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SUNDAY HALF-HOURS OF MUSIC IN THE GREEK THEATRE

BETWEEN JULY 1, 1915, AND JUNE 30, 1916

- July 4—Mr. Clarence Gustin, pianist, Miss Natalie Bigelow, violinist, and Miss Carmel Mitchell, mezzo-soprano.
- July 11—The Fifth Regiment Band, N. G. C., Geo. W. Hollister, band-master.
- July 18—Miss Margaret McNamara, contralto, Miss Julia Hannas, violinist, Mr. Clarence A. Gustin, pianist; and Mr. Roy Williams, violinist, Mrs. Roy Williams, accompanist.
- July 25—Mrs. Julia Ensign Warren, soprano, accompanied by Miss Margaret M. Stretter; Mr. Jack Edward Hillman, baritone, accompanied by Mr. Walter E. Wenzel; and Mr. and Mrs. Cedric Wright, violinists.
- Aug. 22—Miss Mildred Dilling, harpist, and Mr. Hubert Clyde Linseott, '07, baritone, accompanied by Mrs. William Aydelotte.
- Aug. 29—Madame Matja Niessen-Stone, mezzo-soprano, Mr. Warren Lucy, accompanist.
- Sept. 5—Compositions by Mrs. Alma A. Crowley, presented by Mrs. J. O. Lofquist, soprano; Miss Lucy Van De Mark, contralto; Mr. C. H. Oliver, baritone; and Miss Alice Davies, violinist, accompanied by Mrs. Crowley.
- Sept. 12—Miss Ruth Hayward, soprano, accompanied by Mr. Curtis Armstrong; and Mr. Mast Wolfsohn, '16, cellist, accompanied by Mr. J. Hal Barker, '18.
- Sept. 19—Miss Nellie Laura Walker, '19, soprano, with Miss Constance Esteourt, accompanist; and Mr. Walter Handel Thorley, pianist.

- Sept. 26—Compositions by Mr. Arthur Fickenscher, presented by Mrs. Edith Cruzan Fickenscher, soprano; Miss Mary Elizabeth Payne, soprano; Mrs. Jessie Burns Stoll, mezzo-soprano; Mrs. Emma Mesow Fitch, contralto; Miss Ruth Crandall, contralto; Miss Helen Baum, contralto; Mr. Carl Basler, tenor; and a chorus of thirty-five female voices; Mr. Arthur Fickenscher, accompanist.
- Oct. 3—Mme. Louise Brehany, soprano, Mr. Elbert Cowan, accompanist; and Mr. Mast Wolfsohn, '17, 'cellist; Mr. H. Kenneth Fox, '16, violinist; and Mr. J. Hal Barker, '18, pianist.
- Oct. 17—Compositions of Count Axel Raoul Wachtmeister, presented by Mrs. Marion Hovey Brower, soprano; Miss Dorothy Pasmore, 'cellist; Mr. Lowell Moore Redfield, baritone, and Mr. Arthur Gundersen, violinist, accompanied by the composer.
- Oct. 24—Piano transcriptions of orchestral compositions by Mr. Edward G. Stricklen, Instructor in Music, presented by the composer.
- Oct. 31—Blind students from the California School for the Deaf and the Blind.
- Nov. 7—"Terpandros," a mandolin orchestra composed of a number of young Greeks in this vicinity, under the leadership of Spyridon Safrides; Mrs. Fox, accompanist.
- Nov. 14—Miss Margaret Browning, violinist, accompanied by Miss Berenice Browning.
- Nov. 21—Miss Roxana Weihe, pianist.
- Nov. 28—Mrs. Charlotte Westdahl, soprano, accompanied by Miss Willean Davis, pianist, and Mrs. Mildred Sahlström Wright, violinist.
- Dec. 5—Miss Effie Stewart, soprano, accompanied by Mr. Ashley Pettis.
- Dec. 12—A recital by Miss Zhay Clark, harpist, was announced but was not given on account of inclement weather.
- 1916
- Mar. 5—Miss Margaret Graham, soprano, accompanied by Mr. Frederick Maurer.
- Mar. 12—Miss Louise M. Lund, soprano, accompanied by Mr. Frederick G. Schiller; and Miss Alberta Livernash, pianist.
- Mar. 19—Mr. Ernest P. Allen, violinist, and Mr. Howard E. Pratt, tenor, accompanied by Miss Carrie Jones.
- Mar. 26—The California Trio of the University of California: Wyman Garthwaite, '18, violinist, Charles Edwards, '19, 'cellist, Elmore Roberts. '18, pianist.

- Apr. 9—The University of California Cadet Band.
- Apr. 16—Signor Mario Rodolfi, tenor, Miss Daisy Foster, accompanist; and Mr. Karoly Horvath, cymbalon soloist.
- Apr. 23—The University of California Glee Club and the De Koven Club, under the direction of Mr. Clinton R. Morse, '96, assisted by Miss Ruth Bowers, soprano, accompanied by Mrs. Mabel Hill Redfield, and the California Trio, consisting of Wyman B. Garthwaite, '18, violinist, Charles S. Edwards, '19, 'cellist, and Elmore Roberts, '19, pianist.
- Apr. 30—Mr. Gilbert Reek, violinist, Mr. Fred Maurer, Jr., accompanist; and pupils of Mr. Alvin J. Purnell: Mrs. George C. Butler, soprano; Mrs. R. H. Chamlee, contralto; Mr. Felix Desimone, tenor; and Mrs. Stanley Egense, tenor, accompanied by Mr. Fred Maurer, Jr.
- May 7—Mr. Cedric Wright, violinist, Mrs. Mildred Sahlström Wright, violinist, Miss Beatrice Clifford, accompanist.

UNIVERSITY MEETINGS

Aug. 16—President Benjamin Ide Wheeler.

Aug. 27—Hon. William Howard Taft, Kent Professor of Law in Yale University.

Dr. George E. Vincent, President of the University of Minnesota.
Music: University Orchestra.

Sept. 6—Gen. George W. Goethals, Major-General U. S. A.; Governor of the Canal Zone.

Chester H. Rowell, a Regent of the University; Editor of the
"Fresno Republican." (Labor Day Meeting.)

Sept. 10—H. Morse Stephens, Sather Professor of History.

Fred J. Jung, Secretary of the Native Sons of the Golden West.
(Admission Day Meeting.)

Sept. 24—Myron T. Herrick, former American Ambassador to France.

Charles Mills Gayley, Professor of the English Language and
Literature.

Music: University Cadet Band.

Oct. 8—Alfred Holman, Editor of "The Argonaut."

Charles K. Field, Editor of "Sunset."

Music: University of California Glee Club.

Oct. 22—John Hays Hammond, Mining Engineer.

Elwood Mead, Professor of Rural Institutions; Member of the
Rural Credits Commission of California.

Nov. 5—John Huston Finley, President of the University of the State
of New York.

Henry Suzzallo, President of the University of Washington.

Music: University Cadet Band.

Nov. 19—Rear Admiral William F. Fullam, Commander-in-Chief, Pacific
Reserve Fleet.

Mrs. Kate Douglas Wiggin Riggs, author.

Music: Trio—Mr. Kenneth Fox, '16, violin, Mr. Malin Langstroth, '18, 'cello, Mr. Harold Barker, '18, pianist.

- Dec. 3—Farnham P. Griffiths, '06, Lecturer in Law.
James G. Schaeffer, '09, Head Football Coach.
Music: University Orchestra; Treble Clef; Treble Clef Double Quartette.
- Jan. 21—George Herbert Palmer, LL.D., Litt.D., L.H.D., Professor Emeritus of Philosophy, Harvard University; Lecturer in Philosophy on the Mills Foundation.
Rev. Walter Benwell Hinson, D.D., LL.D., formerly of the White Temple, Portland, Oregon.
Music: University Cadet Band.
- Feb. 4—Dr. Ray Lyman Wilbur, President of Leland Stanford Jr. University.
Music: University of California Glee Club.
- Feb. 18—Vernon L. Kellogg, Professor of Entomology, Leland Stanford Jr. University.
Paul L. Fussell, '16.
- Mar. 3—Most Reverend Edward J. Hanna, D.D., Archbishop of San Francisco.
Music: California Trio—C. S. Edwards, '19, W. Garthwaite, '18, Elmore Roberts, '18.
- Mar. 17—*The Life of John Morton Eshleman:*
Regent Guy C. Earl, '83.
Dr. Charles Mills Gayley, Professor of the English Language and Literature.
S. Bruce Wright, '03.
- Apr. 14—Brigadier-General C. A. Woodruff.
J. E. Sprunger, State Secretary of the Y. M. C. A.
- Apr. 28—Leslie Hollis Brigham, '16 Osgood Murdock, '16
Alice Vira Georgeson, '16 Theodore Lunt Preble, '16
Lloyd Nelson Hamilton, '16 William Sears Rainey, '16
Hazel Halma Havermale, '16 Charles Edward Street, Jr., '16
Matthew Emery Hazeltine, '16 Jean Carter Witter, '16
Robert Mack Light, '16 Ennis Casselberry Woodruff, '16
Josephine Miller, '16 Floyd Wayne Stewart, '17.

COMPTROLLER'S REPORT AND
FINANCIAL STATEMENT

1915-1916

COMPTROLLER'S REPORT

*The President and Regents,
of the University of California.*

GENTLEMEN :

The annual report of the University of California, approved by your auditors, is herewith presented.

The financial tables which follow give an accounting of all the funds which have gone through the books of this office, regardless of whether or not they are for current use. It may therefore be of interest to have a general statement of the amounts which have been received for current purposes for the past year and a similar statement of the expenditures for the purposes of teaching, research and administration, as separated from other business of the University.

The income of the University for the past year from the Federal Government has totaled \$101,037.05. The receipts from State appropriations for current use, exclusive of buildings, have been \$1,585,536.52. Students' fees from all sources amount to \$257,160.95. The clinics of the Hospital and Infirmary have brought in \$71,015.97. The receipts from departmental sales, which are used for current expenditures having to do with the academic side of the University, amounted to \$161,280.30, and the income from investments applied to the same purposes amounted to \$224,421.84, including the income from Kearney Vineyard, which amounted to \$40,000.00. Gifts for current uses, exclusive of improvements, amounted to \$90,193.97.

In the expenditure of the \$2,490,970.00 just enumerated, there was expended \$366,851.46 for administration and oper-

ation. This sum includes all administrative salaries, the care, upkeep and maintenance of the grounds and buildings of the various departments of the University wherever located in the State, including heating, lighting and janitor service for buildings, and also includes such extra academic functions as the maintenance and operation of the Students' Infirmary, the subsidy of the Alumni Association and the expenses of examination of high schools accredited to the University. From the total sum there was also expended \$44,785.49 in scholarships and prizes. Expenditures from departmental sales and receipts amounted to \$147,204.98, and this money was largely devoted to the purchase of materials and equipment for use in the Department of Agriculture. The balance of the total expenditure was used for the purpose of instruction and research.

During the past year property at Telegraph Avenue and Allston Way was purchased for the sum of \$45,000.00. Taxes and interest bring the book value of the property to \$47,105.21. This property has been added to the area of the campus and is to be used for University purposes, in accordance with the Phoebe A. Hearst Permanent Plan.

Buildings and improvements in Berkeley have increased in value \$431,000.00, made up principally of expenditures to June 30, 1916, on Benjamin Ide Wheeler Hall, Doe Library, Sather Tower, Printing Office, Household Economics Building, and the Sather Esplanade. The inventories of the University indicate that during the past year the value of general equipment has increased by \$86,803.68.

Real estate and improvements which are located elsewhere than in Berkeley have increased by \$359,041.47. This amount takes into consideration expenditures made during the year on the Hospital Building, amounting to \$237,383.62 out of donations given for this purpose, and \$86,371.50 for additional buildings at La Jolla, the funds of which were contributed by Miss Ellen B. Scripps.

The trust properties which are operated under the direction of this office, including the Bear Gulch Water Company at

Menlo Park and Kearney Vineyard at Fresno have closed their year's business satisfactorily in every way.

The great building programme, for which this office is responsible, is rapidly proceeding and by the end of the coming fiscal year will be completed. Benjamin Ide Wheeler Hall, the recitation building on the campus, costing \$700,000, will be completed in sixteen months and will be ready for use for the term commencing January 1, 1917. The buildings at the Citrus Experiment Station at Riverside will be ready for occupancy not later than March 15, 1917. The Doe Library, which is being completed on the University campus at a cost of \$525,000, will be ready for use by April 1, 1917, and the University Hospital in San Francisco about the same date.

The Comptroller's office, representing the business side of the University, has, at the present time, branch offices located at the University Farm, Davis, the University of California Medical Department at San Francisco, Kearney Vineyard at Fresno and the Scripps Institution for Biological Research at La Jolla. The attention of the Regents is called to the fact that it will be necessary before the end of the coming fiscal year to open another office in Los Angeles to take care of the business interests of the University in the southern part of the State and to co-operate with the Los Angeles Medical Department, the Scripps Institution at La Jolla and the Citrus Experiment Station at Riverside. The desirability of co-operating with these institutions and assisting them in their business affairs would amply justify such expansion, but, in addition to this fact, it must be remembered that the Regents have many financial interests located in the southern part of the State and that these investments will also profit.

Emphasis is again laid upon the nature and purposes of the Comptroller's Office of the University. This organization, as was pointed out in the Annual Report a year ago, is a service department, which exists for the purpose of co-operating with the academic side of the University and assisting in the work of instruction and research by relieving the academic side

of the University from responsibility and possible criticism arising from the conduct of business affairs. The purpose of this organization is to conserve and increase the material resources of the University of California, in order that from year to year the output of the University in teaching, research and public service may be increased.

Respectfully,

RALPH P. MERRITT,
Comptroller.

AUDITORS' CERTIFICATE

*The Finance Committee of the
Board of Regents of the University of California.*

DEAR SIRs: The books and accounts of the the University of California have been audited for the year ended June 30, 1916, and we certify that the Balance Sheet of June 30, 1916, the Statement of Income and Expenditures for the year ended June 30, 1916, and the accompanying Schedules are in accordance therewith, and, in our opinion, correctly exhibit the financial condition of the University.

The Investment securities have all been examined, and agree with the records.

The Income from the Trust Funds has been expended in accordance with the specified conditions of the various trusts.

McLAREN, GOODE & Co.,
Certified Public Accountants.

SAN FRANCISCO, CAL., November 1, 1916.

INCOME

FROM JULY 1, 1915, TO JUNE 30, 1916

No. 1.	Income prior to June 30, 1915, brought forward	\$250,559.15
No. 2.	United States	\$101,037.45
No. 3.	State appropriations	1,934,482.99
No. 4.	Student fees	257,160.95
No. 5.	Clinics of hospitals and Infirmary	71,015.97
No. 6.	Departmental sales, receipts	189,729.04
No. 7.	Income from investments	241,242.35
No. 8.	Gifts:	
	For current use	90,193.97
	For buildings and improvements	98,771.02
	For University Hospital building	371,268.75
	For endowments	96,085.52
	Kearney Vineyard income	40,000.00
	Total income	3,490,988.01
		<hr/>
		<u><u>\$3,741,547.16</u></u>

EXPENDITURES

FROM JULY 1, 1915, TO JUNE 30, 1916

No. 9.	Administration and operation	\$368,651.46	
No. 10.	Buildings and improvements	1,001,213.78	
No. 11.	Education and research	1,841,564.82	
No. 12.	Disbursements from class funds, scholarships, fellowships and prizes	45,792.07	
No. 13.	Departmental sales, etc., expenditures ..	178,008.07	
	Interest paid to endowment pool income, etc.	19,844.75	
	Total expenditures		\$3,455,074.95
No. 14.	Net additions to endowment funds		81,537.69
No. 15.	Income prior to June 30, 1916, carried forward	\$369,120.94	
	Less expenditures prior to June 30, 1916	170,777.70	
			198,343.24
	Surplus for the year		6,591.28
			<u>\$3,741,547.16</u>

[Schedule No. 1]

INCOME AND EXPENDITURES PRIOR TO JUNE 30, 1915,
CARRIED FORWARD*Income*

Agricultural Department sales	\$27,808.98	
Fund Interest Accounts	39,293.10	
Scholarships and Prizes	1,960.80	
Donations	22,142.86	
Permanent Building Fund	59,350.17	
Miscellaneous	85,266.54	
Jane K. Sather Fund for Campanile	49,649.90	
University Hospital Building Fund	26,176.35	\$311,648.70
	<hr/>	

Less

Construction Accounts	\$19,894.90	
Hooper Foundation Research Expenses	41,194.65	
	<hr/>	61,089.55
		<hr/>
		\$250,559.15
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[Schedule No. 2]

INCOME FROM UNITED STATES

Adams Fund	\$15,000.00
Hatch Fund	15,000.00
Smith Lever Fund	21,037.45
Morrill College Aid Fund	50,000.00
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	\$101,037.45
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[Schedule No. 3]

STATE APPROPRIATIONS

1915 APPROPRIATIONS

State University Fund:	
For General Purposes	\$979,312.53
Permanent Building Fund	15,195.62
Scholarships	3,500.00
General Support	200,000.00
Los Angeles Medical Department Equipment	28.45
University Extension	20,000.00
Scripps Institution for Biological Research	12,499.92
Insecticide and Fungicide Control	5,000.00
Agriculture	350,000.00
University Farm Classroom and Library	20,825.98
University Farm Small Buildings	22.50
Experiment Station Land, Southern California	3,340.55
Experiment Station Buildings, Southern California	896.04
Experiment Station Laboratory, Southern California	3,023.86
University Building Bonds	320,837.54
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	\$1,934,482.99
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[Schedule No. 4]

STUDENTS' FEES AND DEPOSITS

Agriculture	\$1,886.30
Anatomy	79.50
Astronomy	337.50
Bacteriology	2,548.76
Botany	1,853.00
Changing Courses	2,504.00
Civil Engineering	3,045.85
Chemistry	15,679.47
Delayed Registration	1,508.00
Domestic Art	363.00
Diplomas	15.00
Drawing	21.60
Dentistry	22,475.19
Dentistry—Special Account	518.70
Gymnasium Suits	221.30
Gymnasium Fees	21,433.85
Key Rental	175.70
History 1	1,035.00
Library	649.00
Law Library	3,732.50
Mechanics	2,061.15
Mineralogy	317.50
Military Uniforms	38.15
Mining	582.45
Medical Department, San Francisco	18,591.84
Medical Department, Los Angeles	879.00
Medical Appointment Fees	73.00
Non-resident	7,461.00
Physics	4,954.87
Physiology	521.80
Special Examinations	1,775.00
Students' Infirmary Fees	34,629.10
Stenography and Typewriting	880.00
University Extension	29,400.54
University Extension—Dentistry	1,684.50
Zoology	1,745.63
Zymology	21.05
Appointment Secretary Letter Fee	1,237.11
Summer Session Fees	70,224.04
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	\$257,160.95
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[Schedule No. 5]

CLINICS OF HOSPITALS AND INFIRMARY

University Hospital, San Francisco	\$42,854.64
Medical Department, Los Angeles	4,847.50
Students' Infirmary	10,826.23
Dentistry Department, San Francisco	12,487.60
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	\$71,015.97
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[Schedule No. 6]

DEPARTMENTAL SALES, ETC., RECEIPTS

Agricultural:

Citrus	\$1,078.37
Dairy	15,458.11
Dairy Certification, Alameda	2,721.75
Dairy Certification, San Francisco	1,986.80
Fertilizer Control	9,923.63
Floriculture	329.30
Hog Cholera Serum	23,707.17
Imperial	152.54
Insecticide and Fungicide Registrations	29.50
Kearney Experiment Station	170.10
Official Advanced Registry Tests	10,085.88
Viticulture	358.21
Veterinary	920.74
Soil Survey	379.30
Photographic	488.00
Agricultural Extension	30.00
Agriculture Directors	200.52
University Farm Income	100,623.43

\$168,643.35

Various:

Library fines	\$1,346.55
Sale of wood and old equipment	608.21
Sale of publications	2,411.46
Sale of Lick Observatory publications	130.55
Sale of syllabi	1,064.33
Sale of Keeler volume	13.75
Sale of Tebtunis Papyri	8.04
Sale of syllabi, History 1	260.00
Sale of equipment, Los Angeles	157.00
Academy of Pacific Coast History	26.04
Interest on daily cash balances	4,303.26
Interest on Infirmary notes	200.12
Interest on Farm note	31.70
Music and Dramatic	3,730.68
Refunds of items charged off, etc.	331.44
Electric Light and Power—General construction	57.04
Storehouse profit	883.02
Scripps Institution—Miscellaneous receipts	2,893.10
Final payment on sale of land	400.00
Rents of cottages and lands	2,229.40

21,085.69

\$189,729.04

[Schedule No. 7]

INCOME FROM INVESTMENTS

Income from Endowment Pool Investments:

Mortgage interest	\$73,362.05	
Bond interest	60,180.41	
Dividends on stock	5,566.00	
Rents—net	43,773.92	
F. M. Smith collateral loan	648.76	
Interest on Hooper Fund expenditures	19,704.91	
Interest on Permanent Building Fund	2,377.93	
Interest on moneys under-invested	15,443.77	
		<hr/>
		\$221,057.75

Income from Investment of Funds not included
in Endowment Pool:

Juckseh Endowment Fund	\$4.00	
W. D. Thompson Memorial Fund	3,000.00	
J. Clute Wilmerding Fund	3,175.01	
M. Kellogg Fellowship Fund	600.00	
Jane K. Sather Historical Library Fund	287.50	
Barbara Weinstock Lectureship Fund	359.21	
University Hospital Building Fund	2,273.05	
Doe Library Fund	2,880.00	
Interest on loans to students	425.06	
T. F. Colin European Fellowship Fund	91.00	
S. C. Irving Prize Fund	7.91	
Lick Observatory Fund	80.00	
Bonnheim Scholarship Fund	2,162.50	
Edith Claypole Memorial Fund	400.00	
Dr. C. W. and Mrs. Sarah E. Fox Memorial Fund	4,000.00	
Edward Tompkins Endowment Fund	439.36	
		<hr/>
		20,184.60
		<hr/>
		\$241,242.35
		<hr/> <hr/>

[Schedule No. 8]

GIFTS

For Current Use:

Mrs. Phoebe A. Hearst, Architecture	\$1,000.00
Mrs. Phoebe A. Hearst, Anthropology	1,680.00
Mrs. Phoebe A. Hearst, Scholarships	2,400.00
Miss A. M. Alexander, Museum of Vertebrate Zoology	11,248.14
Carnegie Foundation for Advancement of Teaching	21,030.00
Congregation Emanu-el, Archaeological research in Jerusalem	100.00
W. H. Taft Pacific Theological Seminary, Earl Lectures	200.00
J. J. Guggenheim, Grunebaume Collection	100.00
Harry East Miller, Bacteriology and Pathology	38.00
Contributions to Neurology by friends of the University, Medicine	1,575.00
J. K. Moffitt, Medicine	1,100.00
Pacific Gas Association, course in Gas Engineer- ing	5,000.00
A Friend, Palaeontology	2,400.00
P. E. Bowles, tree planting	500.00
Per R. E. Keys, books for Dental Department..	25.00
Miss Ellen B. Scripps, Institution for Biological Research	9,000.00
E. W. Scripps, Institution for Biological Re- search	1,500.00
Miss Ellen B. Scripps, library books at La Jolla Rockefeller Institute, Pathology	5,195.90
American Association for International Con- ciliation, Summer Session—Conciliation	250.00
Mrs. E. A. Drexler, University Hospital	2,400.00
W. H. Crocker, Zoology	1,000.00
Ignatius Steinhart, Zoology	250.00
State Rivers and Water Supply, Australian Scholarships	1,067.40
A. Bonnheim, Prize	250.00
A. Bonnheim, Scholarships	3,280.00
F. M. Anderson, Graduate fellowship	500.00
R. J. Taussig, Bryce Historical Essay Prize	100.00
Native Sons of the Golden West, Fellowships....	3,005.00

Carried forward \$76,528.97

[Schedule No. 8—Continued]

<i>Brought forward</i>	\$76,528.97	
Newman Hall, Essay Prize	100.00	
San Jose High School, Scholarships	125.00	
Levi Strauss, Scholarships	3,500.00	
Swedish-American Patriotic League, Scholarships	125.00	
Presbyterian Church, Scholarships	250.00	
Knights of St. Patrick, Irish books	100.00	
D. O. Mills, Estate of, Lick Observatory	7,250.00	
Name withheld, E. Claypole Memorial Fund		
Interest	1,925.00	
Donation	120.00	
Donation, Hospital Crutch and Splint Fund	170.00	
		\$90,193.97
For Buildings and Improvements:		
Mrs. Phoebe A. Hearst, Greek Theatre repairs	\$1,000.00	
Mrs. Phoebe A. Hearst, Mining Building equipment	2,323.02	
Mrs. Phoebe A. Hearst, grading around Mining Building	2,000.00	
W. H. Spears, buildings at La Jolla	110.00	
E. W. Scripps, buildings at La Jolla	1,350.00	
Ellen B. Scripps, buildings at La Jolla	86,371.50	
W. H. Crocker, University Hospital equipment	2,616.50	
N. Ohlandt, University Hospital equipment	1,500.00	
F. Dohrman, University Hospital equipment	500.00	
D. C. Jackling, University Hospital equipment	1,000.00	
		98,771.02
For University Hospital Building:		
W. M. Alexander	\$1,000.00	
Harriet C. Alexander	50,000.00	
Antoine Borel & Co.	2,500.00	
Samuel Bissinger	1,000.00	
W. B. Bourn	10,000.00	
P. E. Bowles	2,750.00	
Selah Chamberlain	5,375.00	
Chas. T. Crocker	25,000.00	
W. H. Crocker	41,250.00	
M. J. Fontana	412.50	
Wm. Fries	500.00	
Mortimer and Herbert Fleishhacker	4,125.00	
D. Ghirardelli	1,500.00	
D. Ghirardelli Co.	2,000.00	
<i>Carried forward</i>	\$147,412.50	\$188,964.99

[Schedule No. 8—Continued]

<i>Brought forward</i>	\$147,412.50	\$188,964.99
Jeanette A. Jordan	4,125.00	
Estate of John M. Keith, \$127,819.45, less Expenses, \$1,025.70	126,793.75	
C. Frederick Kohl	2,500.00	
J. J. Mack	825.00	
Morris Meyerfeld, Jr.	550.00	
J. K. Moffitt	5,000.00	
Delia Moffitt	10,000.00	
H. C. Moffitt	2,500.00	
Robt., Geo. and Leon Roos	2,500.00	
Rosenberg Bros. Co.	500.00	
Adolfo Stahl	2,062.50	
Louise T. Sharon	25,000.00	
Sanford Sachs	500.00	
Sigmund Schwabacher	500.00	
I. Strassburger	500.00	
Geo. Whittell, Jr.	15,000.00	
Jennie Crocker Whitman	25,000.00	
	<hr/>	371,268.75
For Additions to Endowments:		
Myron Hall Peck (Class of 1897), Alumni Hall Fund	\$16.00	
J. K. Moffitt, Alumnus Book Fund	1,200.00	
Joseph Bonnheim, Bonnheim Scholarship Endow- ment Fund	70,000.00	
Class of 1909, Class Fund	4.73	
Class of 1914, Class Fund	1,275.00	
Class of 1915, Class Fund	1,000.00	
T. F. Colin, Colin European Fellowship Fund ...	1,014.24	
Name withheld, Loan Fund No. 3	100.00	
F. Bradley, Mining Students' Loan Fund	1,000.00	
Napa Seminary, Loan Fund	100.00	
Whitney Palache, Endowment Fund for Hospital	10,000.00	
Oriental Institute, Endowment Fund for Hos- pital	4,959.55	
Prytanean Society, Prytanean Hospital Fund....	50.00	
Prytanean Society, Prytanean Fund for Stud- ents' Union	366.00	
San Francisco Girls' Union, Scholarship Fund..	5,000.00	
	<hr/>	96,085.52
		<hr/>
		\$656,319.26
		<hr/>

[Schedule No. 9]

ADMINISTRATION, MAINTENANCE AND OPERATION

Administration salaries	\$48,282.98
Advisors	288.00
Affiliated Colleges, repairs	1,000.00
Affiliated Colleges, site	573.04
Affiliated Colleges, watchman	1,156.50
Auditing	2,104.70
Administration, assistance	26,469.79
Administration, printing	13,614.82
Comptroller's Office, assistance	34,249.47
Examination of schools	3,353.25
Expense	14,644.79
Fuel	927.76
Heating and lighting	37,981.73
Janitors	41,650.85
Mechanical and electrical shop	1,223.10
Postage	5,597.18
President's Contingent	3,000.00
Publications	17,421.73
Removal expenses	1,015.00
Repairs	14,946.95
Site	19,154.80
Stationery	2,382.44
Telephone, telegraph and express	6,360.73
Water	11,281.84
Accounts written off	95.03
Cash—Overs and shorts	4.47
University Building Bonds, general charges	1,290.38
Students' Gymnasium	15,442.10
Students' Infirmary	36,543.71
Removal of P. P. I. E. exhibits	812.60
Retiring allowances	981.72
Alumni Association	3,000.00
Building Bonds Suspense Account	1,800.00
	<hr/>
	\$368,651.46
	<hr/>

[Schedule No. 10]

NEW BUILDINGS AND IMPROVEMENTS

Buildings and Improvements in Berkeley:

Architecture and Drawing Buildings, heating	\$34.65	
Anatomy Department, alterations	6,845.28	
California Hall, alterations	965.45	
Chemistry Building, first wing	2,456.90	
Chemistry Building, alterations	1,512.00	
Chemistry New Laboratory, equipment	13.19	
Domestic Science Building	14,362.91	
Drawing Building, alterations	118.95	
Harmon Gymnasium, alterations	2,626.40	
Handball Courts	666.50	
Hilgard Hall	4,642.30	
Infirmery Annex	2,703.35	
Marble chairs in Greek Theatre	273.53	
Music Department, heating	62.70	
Mining Building, equipment	2,323.02	
Philosophy Building, removal	228.35	
Pathology Building, alterations	553.90	
Printing Office, new building	21,382.64	
Strawberry Cañon Rabbitry	1,036.80	
Printing Office, special appropriation	86.68	
President's House, furnishings	48.38	
University Power Plant, addition	196.80	
University Library Building, addition	40,486.64	
Tree planting and trail making	4,002.55	
Wheeler Hall	271,758.92	
Sather Campanile	28,609.41	
Sather Tower Esplanade	18,080.26	
		\$426,078.46

Buildings and Improvements at University Farm:

Class Room and Library	\$20,825.98	
Small buildings	22.50	
		20,848.48

Buildings and Improvements not in Berkeley:

University Hospital Building	\$237,383.62	
University Hospital, furnishings	116.58	
Scripps Institution for Biological Research	88,840.36	
Los Angeles Medical Department, equipment....	28.45	
Lick Observatory storage battery	2,213.67	

<i>Carried forward</i>	\$328,582.68	\$446,926.94
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[Schedule No. 10—Continued]

<i>Brought forward</i>	\$328,582.68	\$446,926.94
Wilmerding School	9,645.21	
Citrus Experiment Station, Southern California, buildings	896.04	
Citrus Experiment Station Laboratory	3,023.86	
Citrus Experiment Station, land	3,340.55	
	<hr/>	345,488.34
		<hr/>
		\$792,415.28
Ten-Year Programme:		
Agriculture Hall	\$92,883.85	
Doe Library, furnishings	67,458.04	
Watershed lands	48,456.61	
	<hr/>	208,798.50
		<hr/>
		\$1,001,213.78
		<hr/> <hr/>

[Schedule No. 11]

EDUCATION AND RESEARCH

Various Departments at Berkeley:

Expenditures from general funds	\$845,031.63
Expenditures from donations	49,011.78
Expenditures from endowment funds	64,312.70
Expenditures from Morrill College Aid Fund	22,500.20

University Hospital:

Expenditures from general funds	63,194.49
Expenditures from hospital receipts	42,854.64
Expenditures from Endowment Pool income	5,897.50
Expenditures from Fox Fund	4,000.00
Expenditures from donations	2,475.00

Agricultural Departments:

Expenditures from general funds	84,107.62
Expenditures from Adams Fund	15,000.00
Expenditures from Hatch Fund	15,000.00
Expenditures from Smith-Lever Fund—Federal	21,037.45
Expenditures from Smith-Lever Fund—State	11,037.45
Expenditures from Morrill College Aid Fund	27,499.80
Expenditures from State appropriations	355,000.00
Expenditures from donations	76.75

University Extension	29,400.54
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University Extension, State appropriation	20,000.00
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University Extension, Dentistry	1,447.72
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Lick Observatory	32,021.92
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Scripps Institution for Biological Research	25,339.56
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Purchase of Library books out of donations and endowment funds	7,817.75
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Summer Session expenditures	81,207.67
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Los Angeles Medical Department	10,000.00
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Los Angeles Medical Department Dispensary	6,292.65
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 \$1,841,564.82

[Schedule No. 12]

DISBURSEMENTS FROM CLASS FUNDS, SCHOLARSHIPS,
FELLOWSHIPS AND PRIZES

Alumna Scholarship	\$187.50
Bonnheim Scholarships	5,442.50
Australian Scholarships	1,180.15
P. Chas. Cole Scholarship	62.50
W. R. Davis Scholarship	250.00
Dolbeer Scholarships	800.00
Helen Du Bois Scholarships	300.00
J. M. Goewey Scholarship	1,200.00
Phoebe A. Hearst Scholarships	2,010.00
C. B. Houghton Scholarship	750.00
C. M. Jones Scholarships	6,300.00
A. S. Johnston Scholarship	175.00
Paget Scholarship	600.00
F. M. Pixley Scholarship	200.00
Presbyterian Church Scholarship	250.00
San Jose High School Scholarship	125.00
S. Sanborn Scholarships	1,500.00
State of California Scholarships	3,687.50
H. Stebbins Scholarship	175.00
Swedish-American Patriotic League Scholarship	62.50
Levi Strauss Scholarships	3,437.50
Bertha H. Taussig Scholarship	1,020.00
W. D. Thompson Scholarships	3,000.00
M. Kellogg Fellowship	1,783.34
Le Conte Fellowship	1,000.00
University Fellowships	3,800.00
Whiting Fellowships	1,800.00
Native Sons of the Golden West Fellowships	3,000.00
Bonnheim Prizes	250.00
Bryce Historical Essay Prize	100.00
Newman Hall Essay Prize	100.00
Irving Prize	30.00
Richardson Latin Translation Prize	75.00
University Medal	132.00
Payments to class secretaries and others	1,006.58

\$45,792.07

[Schedule No. 13]

DEPARTMENTAL SALES., ETC., EXPENDITURES

Agricultural:

Agriculture Extension	\$5.32
Agriculture Directors	176.33
Citrus	1,073.59
Dairy	14,998.46
Dairy Certification, Alameda	2,522.82
Dairy Certification, San Francisco	1,585.36
Entomology .....	.72
Fertilizer Control	11,862.07
Floriculture	293.45
Hog Cholera Serum	28,409.76
Imperial	152.75
Insecticide and Fungicide registration	221.97
Kearney Experiment Station	243.94
Nutrition	75.24
Photographic	26.06
Plant Pathology .....	.98
Official Advanced Registry tests	10,992.46
Soil Survey	823.90
Viticulture	478.67
Veterinary	851.76
University Farm income	99,349.79

Various:

Academy of Pacific Coast History	1.93
Sale of "Zoe"	8.30
Music and Dramatic	3,840.38
Tebtunis Papyri	12.06

\$178,008.07

[Schedule No. 14]

NET ADDITIONS TO ENDOWMENT FUNDS

Donations to funds	\$96,085.52
Fund income transferred to funds	9,803.41
Income credited to funds	3,237.62
Endowment Pool income credited to funds	10,411.14
	<hr/>
	\$119,537.69
Jane K. Sather Fund awaiting distribution decreased for Sather Esplanade	38,000.00
	<hr/>
	\$81,537.69
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Reconciliation of Endowment Funds as shown in Balance Sheet:

Balance Sheet, June 30, 1915	\$5,591,839.70
Additions as above	119,537.69
Donations to University Hospital Building Fund	371,268.75
Income to University Hospital Building Fund	2,273.05
	<hr/>
	\$6,084,919.19

Less Expenditures on University Hospital

Building	\$237,383.62
Expenditures on Sather Campanile.....	28,609.41
Expenditures on Sather Esplanade.....	18,080.26
Payment to Class Secretary	1.67
	<hr/>
	284,074.96
	<hr/>
	\$5,800,844.23

Less Transfers from Consolidated Perpetual

Endowment Fund to:

Revenue deficit	\$184,312.68
Johnson Building	35,987.00
Sacramento Building	47,938.00
	<hr/>
	268,237.68
	<hr/> <hr/>

As per Balance Sheet, June 30, 1916	\$5,532,606.55
	<hr/> <hr/>

[Schedule No. 15]

INCOME AND EXPENDITURES PRIOR TO JUNE 30, 1916,
CARRIED FORWARD

Income:

Agricultural Department sales	\$12,239.58	
Fund interest accounts	34,731.97	
Scholarships and prizes	2,493.05	
Donations	36,726.32	
Miscellaneous	79,635.26	
Jane K. Sather Fund for Campanile	21,040.49	
Jane K. Sather Fund for Esplanade	19,919.74	
University Hospital Building Fund	162,334.53	
	<hr/>	\$369,120.94

Less

Construction accounts	\$43,966.90	
Hooper Foundation Research expenses	82,703.18	
State Appropriation Suspense Account	44,107.62	
	<hr/>	170,777.70
		<hr/>
		<u>\$198,343.24</u>

BALANCE SHEET

ASSETS

Schedules

Real Estate and Improvements:		
"A"	Real estate in Berkeley	\$1,545,822.44
"B"	Buildings and improvements in Berkeley	4,052,627.00
"C"	Real estate and improvements not in Berkeley	3,537,979.07
		<hr/>
		\$9,136,428.51
Equipment:		
	General	\$2,372,353.34
	Bancroft Library	250,005.00
		<hr/>
		2,622,358.34
Investments:		
"D"	Notes receivable	\$1,134,841.93
"E"	Bonds	1,178,971.00
"F"	Stocks	170,552.00
"G"	Real estate held as investments.....	2,192,487.75
	Balances on contracts for sale of real estate	7,500.21
	Realty Union of San Francisco Certificate	6,000.00
	Expenditures under G. W. Hooper Endowment Fund	435,213.15
		<hr/>
		5,125,566.04
	Suspense Account—Montgomery Avenue Bonds	21,999.00
"H"	Departmental and other expenditures carried for- ward	136,801.22
"I"	Amounts due from State of California under vari- ous appropriations	116,025.25
	Sundry debtors	138,880.59
"K"	Cash on hand	322,961.05
		<hr/>
		\$17,621,020.00
		<hr/>

JUNE 30, 1916

LIABILITIES

Schedules

"L"	University of California, Surplus invested in fixed assets	\$11,704,725.99
"M"	Endowment funds	5,532,606.55
	Gains in Endowment Pool investments	2,186.84
"N"	Fund income accounts	34,906.42
"O"	Donation accounts—Unexpended balances	40,323.60
"P"	Balances on hand to be used for specific purposes	131,096.94
"Q"	Sundry creditors	168,582.38
	Revenue Account, surplus	6,591.28

\$17,621,020.00

[Schedule "A"]

REAL ESTATE IN BERKELEY

University Campus site	\$1,000,000.00
Hearst Hall and Hearst Cottage site	7,000.00
Hillegass Tract site	194,991.04
Palmer House site	17,500.00
Barrow Street property	63,450.00
Watershed lands	168,456.61
Sylvan Way property	15,395.00
Sylvan Way and College Avenue (buildings and lands).....	31,924.58
Telegraph and Allston Way	47,105.21
	<hr/>
	\$1,545,822.44
	<hr/> <hr/>

[Schedule "B"]

BUILDINGS AND IMPROVEMENTS IN BERKELEY
UNIVERSITY OF CALIFORNIA

Acid House	\$480.00
Agriculture—Forestry Division, portable house	1,237.76
Agricultural Building (Budd Hall)	7,200.00
Agriculture Hall	212,883.85
Anatomical Library and Printing Office	8,900.00
Architectural Building	23,377.53
Bacon Library Building	60,515.74
Bacteriological Laboratory	480.00
Barn	2,300.00
Boalt Hall of Law	159,287.61
Botany Building	5,600.00
California Field Bleachers	20,000.00
California Hall	271,711.33
Sather Tower	203,959.51
Cement sidewalks	596.25
Chemistry Auditorium	36,314.67
Chemistry Addition No. 2	28,648.75
Chemistry Building	81,000.00
Chemistry Building, First wing	2,456.90
Chemistry Storehouse	10,426.03
Carpenters' Shop, Mill	1,500.00
Civil Engineering Hall	36,750.30
Civil Engineering Laboratory	2,400.00
Civil Engineering Testing Laboratory	9,366.08
Concrete bridge near Faculty Club	1,387.92
Concrete bridge near Football Statue	3,384.33
Concrete bridge at Sather Gate	10,922.86
Conservatory	10,800.00
Dairy Barn	2,400.00
Domestic Science Building	14,362.91
Drinking fountain	619.10
Dairy manure pit	1,031.15
Dairy milk house	4,160.60
Drawing Building	19,354.18
East Hall	18,000.00
Entomological Laboratory	2,569.99
Faculty Club Building	30,000.00

Carried forward \$1,306,385.35

[Schedule "B"—Continued]

Brought forward	\$1,306,385.35
Fertilizer Control Laboratory	26,385.72
Girton Hall	4,032.34
Greek Theatre	45,000.00
Handball courts	666.50
Harmon Gymnasium	50,181.89
Hearst Hall	59,398.27
Hearst Memorial Mining Building	644,400.00
Hilgard Hall	4,642.30
Hygiene and Pathological Building	39,450.22
Landscape gardening	3,118.85
Mechanics Building	61,025.00
John Mitchell Monument	358.95
Museum Building	3,667.77
Hearst Circle	15,887.54
Permanent roads	78,914.99
North Hall	20,000.00
Nursery and propagation house	1,500.00
Painters' Shop	2,000.00
Philosophy Building	8,000.00
Plant houses	700.00
Platform scales	350.00
Power, Light and Heat Plant:	
Power House (building and machinery)	73,618.09
Heating system	51,385.38
Electric construction on Campus	9,430.68
Printing Office	21,382.64
Plumbing Shop	1,200.00
President's House	113,868.35
Rifle range	501.90
Running track	60,000.00
Sather Esplanade	18,080.26
Sather Gateway	39,413.51
Senior Hall	5,915.02
Shooting gallery	50.00
South Hall	126,000.00
South Hall Addition	5,681.63
Rudolph Spreckels Physiological Laboratory	25,000.00
Storage bins	1,000.00
Storehouse, General	728.43
Strawberry Cañon weir	569.80
Carried forward	\$2,929,891.38

[Schedule "B"—*Continued*]

<i>Brought forward</i>	\$2,929,891.38
Students' Infirmary and Annex	29,073.09
Students' Observatory	8,500.00
Office of Superintendent of Grounds and Buildings	1,200.00
Swimming tank	17,200.00
Sun-dial	350.00
Tennis courts	22,115.24
Tool house, Botany Garden	282.90
Trunk sewer	6,356.10
University Library	724,756.45
Viticultural Laboratory	400.00
Benjamin Ide Wheeler Hall (partial payments)	271,764.52
Women's athletic field	2,297.67
Women's swimming pool	12,445.34
Museum of Vertebrate Zoology	15,094.31
Dwellings rented:	
Palmer house	2,500.00
University cottages	8,400.00
	<u>\$4,052,627.00</u>

[Schedule "C"]

REAL ESTATE AND IMPROVEMENTS NOT IN BERKELEY

Affiliated Colleges, San Francisco	\$405,707.74
University Hospital Building	273,256.77
San Francisco Institute of Art	235,150.00
Wilmerding School:	
New buildings	\$61,407.52
Old buildings	24,906.46
Real estate	61,741.36
	<hr/> 148,055.34
Lick Observatory:	
Land and buildings (original bequest)	\$387,000.00
Barn	1,254.95
Dormitory and cottages	55,169.08
Electric light and power plant	11,606.23
Tank	2,701.00
Vault	19,834.70
Lands:	
Cook Tract	960.00
Duckworth Tract	316.42
Hartzoke Tract	262.73
Holden Tract	511.25
	<hr/> 479,616.36
Pacific Grove:	
Herzstein Seaside Laboratory	2,500.00
University Farm, Davis:	
Land and buildings	533,846.93
Buildings in East Oakland—Hog serum plant	8,695.92
Southern California Pathological Laboratory:	
Buildings and land at Riverside	\$87,318.80
Buildings at Whittier	12,821.31
	<hr/> 100,140.11
Imperial Valley—Buildings at Meloland	3,021.53
Kearney Estate, Fresno	1,000,000.00
Los Angeles Medical Department:	
Land, buildings and equipment	\$100,000.00
Hospital buildings (gift of State)	24,999.70
	<hr/> 124,999.70
Carried forward	<hr/> \$3,314,990.40

[Schedule "C"—Continued]

<i>Brought forward</i>		\$3,314,990.40
Scripps Institution:		
Buildings at La Jolla	\$101,655.36	
Land at La Jolla	90,000.00	
		191,655.36
Other real estate:		
Congressional lands	\$10,568.92	
Public building lands	800.00	
Potrero Avenue lots	10,364.39	
Real estate in Tulare County	9,600.00	
		31,333.31
		<u>\$3,537,979.07</u>

[Schedule "D"]

NOTES RECEIVABLE

Mortgage loans on California property	\$1,103,675.
Collateral loans	9,950.

LOANS FROM CLASS FUNDS

Class of 1881	\$1,035.00	
Class of 1886	1,422.85	
Class of 1895	744.12	
Class of 1897	852.50	
Class of 1898	147.00	
Class of 1903	324.50	
Class of 1909	336.17	
Class of 1911	632.50	
		5,494.

LOANS FROM OTHER FUNDS

E. A. Denicke Loan Fund	\$1,832.81	
Grubstake "W" Loan Fund	80.00	
Loan Fund No. 2	200.00	
Loan Fund No. 3	100.00	
Medal Loan Fund	280.00	
Mining Students' Loan Fund	2,390.00	
Napa Seminary Loan Fund	250.00	
San Joaquin Women's Club Loan Fund	76.00	
Special Senior Class Loan Fund	300.00	
Snell Seminary Loan Fund	272.00	
Walton Memorial Loan Fund	954.15	
		6,734.
Students' Infirmary notes		7,986.
J. B. Reinstein		1,000.
		\$1,134,841.

[Schedule "E"]

BONDS

	No. of Bonds	Book Value	Last Coupon		Date of Examination	Par Value
Bear Gulch Water Company	164	\$164,000.00	Jan. 15, 1916	32	Sept. 7, 1916	\$164,000.00
Bohemian Club	6	600.00	Jan. 1, 1917	15	Sept. 7, 1916	600.00
Michigan State Telephone Co.	2	2,000.00	Aug. 1, 1916	25	Sept. 7, 1916	2,000.00
Montgomery Avenue	22	1.00	.....	....	.....	22,000.00
Oakland Traction Consolidated	15	14,662.50	Jan. 2, 1917	24	Sept. 7, 1916	15,000.00
Pacific Telephone and Telegraph Co.	10	10,000.00	Jan. 2, 1917	20	Sept. 7, 1916	10,000.00
Sacramento Electric, Gas and Railway Co.	1	1,020.00	Nov. 1, 1916	38	Sept. 7, 1916	1,000.00
Southern California Edison Co.	3	3,000.00	Jan. 1, 1917	14	Sept. 7, 1916	3,000.00
Southern Pacific R. R. Co.	33	32,937.50	Jan. 1, 1917	24	Sept. 7, 1916	33,000.00
Tonopah United Water Co.	20	20,000.00	Jan. 1, 1917	22	Sept. 7, 1916	20,000.00
Spring Valley Water Co.	100	100,000.00	Dec. 1, 1916	26	Sept. 7, 1916	100,000.00
State of California Bonds .....	.....	751,000.00				
State of California Diverted Funds .....	.....	79,750.00				

\$1,178,971.00

[Schedule "F"]

STOCKS

	No. of Shares	Par Value	Book Value
Bear Gulch Water Company	4,000	\$400,000.00	.....
Bank of California, N. A.	100	10,000.00	\$20,550.00
Fireman's Fund Insurance Company....	100	10,000.00	21,000.00
Kennedy Mining and Milling Co.	1,200	120,000.00	1.00
Mackay Companies (Preferred)	704	70,400.00	50,000.00
Sather Banking Company	200	20,000.00	1,500.00
Various mining stocks (Thompson Fund) .....	.....	.....	1.00
University Land and Improvement Co.....	2,500	2,500.00	2,500.00
Weinstock-Lubin Real Estate Co.:			
Preferred	3,000	30,000.00	30,000.00
Common	450	45,000.00	45,000.00
			<hr/>
			\$170,552.00
			<hr/> <hr/>

[Schedule "G"]

REAL ESTATE HELD AS INVESTMENTS AND BALANCES OF
CONTRACTS FOR SALE OF REAL ESTATE

Real estate in Berkeley	\$133,395.68	
Real estate in Berkeley—Claremont Court	10,000.00	
Real estate in Berkeley—Sacramento and Cedar..	5,064.75	
Real estate in West Berkeley	2,697.31	
Real estate in Humboldt County	1,000,000.00	
Real estate in Menlo Park	11,830.00	
Real estate in Oakland (Fourteenth and Wash- ington streets)	400,000.00	
Real estate in Oakland (Santa Clara avenue).....	3,800.00	
Real estate in Oceanside	1,800.00	
Real estate in Redlands	5,714.10	
Real estate in Chicago	50,000.00	
Real estate in San Francisco:		
Johnson Building site	295,661.63	
Johnson Building reconstruction	3,428.34	
Sacramento Building and site	269,095.94	
		\$2,192,487.75
		<hr/>
Balances of Contracts for Sale of Real Estate:		
Country Club Heights	\$6,200.21	
I. W. Fisher	1,300.00	
		<hr/>
		\$7,500.21
		<hr/>

[Schedule "H"]

DEPARTMENTAL AND OTHER EXPENDITURES
CARRIED FORWARD

Rent of property on University, Oxford and Center streets	\$.50
Summer Session, 1914	4,894.84
Summer Session, Agriculture	183.17
Fertilizer Control	4,138.49
Academy of Pacific Coast History	993.36
Class of 1900 Library Fund .....	.21
Jucksch Endowment Fund	32.63
Richardson Latin Translation Prize Fund	70.82
Jane K. Sather Historical Library Fund	35.87
J. C. Wilmerding Endowment Fund	767.64
Anatomy	462.89
Anthropology	330.65
Administration Assistance	165.00
Astronomy	23.00
Bio-Chemistry	59.80
Chemistry	685.68
Civil Engineering	405.25
Comptroller's Office Assistance	2.25
Dentistry	130.19
Drawing	30.00
Expense	60.00
English	48.50
History	29.40
Jurisprudence	116.07
Library	466.62
Lick Observatory	310.51
Mechanics	500.00
Medicine	5.75
Mining	701.84
Musie	10.26
Pathology	703.22
Physical Education for Men	17.66
Physics	402.41
Postage	200.60
President's Contingent	250.00
Printing Office	3,130.29
Publications	14.50

Carried forward \$20,379.87

[Schedule "H"—Continued]

Brought forward \$20,379.87

Stationery	28.96
Storehouse (stores on hand)	3,153.23
University Extension	6,389.57
Students' Deposits—Dentistry, special	62.80
Building Bonds Suspense Account	1,800.00
Suspense Account, State Appropriation Agriculture	44,107.62
Suspense Account, Commission on rental	14,162.50
State Appropriation Agriculture, Berkeley, 1916-17 .....	.55
State Appropriation Agriculture, Citrus, 1916-17	50.00
Imperial sales .....	.21
Kearney Experiment Station sales	2.09
Official Advanced Registry tests	854.91
University Farm Income Account	2.76
Los Angeles Medical Department Maintenance	461.22
Pacific Coast History donations	195.23
Los Angeles Medical Department Dispensary	188.44
Alumni Association Appropriation	994.36
Anatomy Department, alterations	\$6,345.93
Domestic Science Building	14,362.91
Philosophy Building, removal	228.35
Printing Office, new building	21,382.64
Strawberry Cañon Rabbitry	316.69
Women's Swimming Pool	1,127.12
Printing Office, special appropriation	86.68
University Hospital Building, furnishings	116.58
	43,966.90
	<u>\$136,801.22</u>

[Schedule 'I']

AMOUNTS DUE FROM THE STATE OF CALIFORNIA
UNDER VARIOUS APPROPRIATIONS

Department of Agriculture, Berkeley	\$2,652.47
Department of Agriculture, University Farm	798.60
Department of Agriculture, Citrus	2,484.67
Department of Agriculture, salaries	20,053.91
Department of Agriculture, Class room, University Farm	323.49
Insecticide and Fungicide Control	827.31
Citrus Experiment Station, Laboratory	3,023.86
Citrus Experiment Station, buildings	896.04
Citrus Experiment Station, lands	3,398.90
Interest on State bonds and diverted funds	24,922.50
University Building Bonds	37,268.44
General support	16,666.74
Scripps Institution, San Diego	1,041.66
University Extension	1,666.66
	<hr/>
	\$116,025.25
	<hr/>

[Schedule "K"]

CASH ON HAND AS AT JUNE 30, 1916

Mortimer Fleishhacker, Treasurer, Cash on hand	\$406,164.83
Contingent Funds:	
R. P. Merritt, Comptroller	\$10,000.00
R. G. Sproul, Assistant Comptroller	5,000.00
W. C. Crandall, Scripps Institution	2,500.00
H. E. van Norman, University Farm	3,500.00
Geo. H. Kress, Los Angeles Medical Department	2,500.00
H. T. Summersgill, University Hospital	1,000.00
W. W. Campbell, Lick Observatory	800.00
G. S. Millberry, Dentistry Department	450.00
J. C. Merriam, Palaeontology Department	200.00
F. M. Marquis, Hog Serum Department	20.00
E. W. Gifford, Anthropology Department	100.00
	<hr/>
	26,070.00
Cash in hand of various departments, deposited with Treasurer after June 30, 1916:	
University Hospital	\$975.00
University Farm, Davis	463.71
Los Angeles Medical Department	74.00
Dental Department	83.90
	<hr/>
	1,596.61
Certified checks on hand	900.00
	<hr/>
	\$434,731.44
Less Treasurer's advances—Bills paid by Treasurer's advance checks	111,770.39
	<hr/>
	<u>\$322,961.05</u>

[Schedule "L"]

SURPLUS INVESTED IN FIXED ASSETS

Balance forward from last year	\$10,618,048.15	
Less written off during year—		
Hearst Hall Building	2,297.67	
		\$10,615,750.48
Additions:		
Anatomy Building	\$2,500.00	
Chemistry Building—First wing	2,456.90	
Domestic Science Building	14,362.91	
Fertilizer Control Building	9,674.47	
Handball Courts	666.50	
Hilgard Hall	4,642.30	
Infirmary Annex	2,703.35	
Hygiene and Pathology Building	553.90	
Printing Office Building	21,382.64	
Power House	196.80	
Senior Hall Building	163.60	
Sather Tower	28,609.41	
Sather Esplanade	18,080.26	
University Library Building	40,486.64	
University Farm Class room	20,848.48	
University Hospital	237,383.62	
Benj. Ide Wheeler Hall	271,764.52	
Wilmerding School, new building	9,251.65	
Wilmerding School, real estate	393.56	
Women's Swimming Pool	12,445.34	
Women's Athletic Field	2,297.67	
Riverside lands	769.90	
Riverside buildings	6,548.90	
Buildings at La Jolla	85,155.36	
Heating system	34.65	
		793,373.33
Equipment—Increase during year		86,803.68
Ten-Year Programme:		
Watershed lands	\$48,456.61	
Agriculture Hall	92,883.85	
Doe Library, furnishings	67,458.04	
		208,798.50
		\$11,704,725.99

[Schedule "M"]

ENDOWMENT FUNDS

Alumnae of Y. W. C. A. of University of California Fund	\$600.00
Alumni Association Life Membership Fund	4,230.54
Alumni Hall Fund	11,396.85
Alumnus Book Fund	5,372.76
Associated Women Students' Fund	1,065.02
Philo Sherman Bennett Prize Fund	677.90
Joseph Bonnheim Scholarship Fund	70,000.00
Class of 1874 Library Fund	52.91
Class of 1881 Loan Fund	1,210.31
Class of 1886 Loan Fund	5,356.84
Class of 1887 Library Fund	440.00
Class of 1895 Loan Fund	761.90
Class of 1897 Library Fund	105.08
Class of 1897 Loan Fund	1,202.58
Class of 1898 Loan Fund	227.14
Class of 1900 Library Fund	628.50
Class of 1902 Library Fund	125.00
Class of 1903 Loan Fund	1,250.26
Class of 1906 Fund	300.00
Class of 1907 Permanent Endowment Fund	500.00
Class of 1907 Permanent Endowment Fund	150.00
Class of 1908 Fund	217.35
Class of 1909 Endowment Fund	600.00
Class of 1909 Loan Fund	1,204.73
Class of 1910 Endowment Fund	1,350.00
Class of 1911 Fund	1,000.00
Class of 1911 Loan Fund	758.72
Class of 1912 Fund	1,900.00
Class of 1913 Fund	1,190.00
Class of 1914 Fund	1,275.00
Class of 1915 Fund	1,000.00
Edith Claypole Memorial Research Fund	10,654.92
P. Chas. Cole Scholarship Fund	2,746.01

Carried forward \$129,550.32

[Schedule "M"—Continued]

<i>Brought forward</i>	\$129,550.32
Thérèse F. Colin European Fellowship Fund	10,761.94
Thérèse F. Colin European Fellowship Fund, No. 2	1,171.89
Consolidated Perpetual Endowment Fund	992,217.27
Emily Chamberlain Cook Prize Fund	1,244.21
W. R. Davis Scholarship Fund	5,000.00
E. A. Denicke Library Fund	2,000.00
E. A. Denicke Loan Fund	6,320.68
F. W. Dohrmann Memorial Loan Fund	5,318.49
Dental Endowment Fund.....	6,190.57
Doe Library Fund	91,864.48
John Dolbeer Scholarship Fund	17,283.35
Helen Du Bois Endowment Fund	5,016.52
Federal Endowment Fund	732,485.14
Dr. C. W. and Mrs. Sarah E. Fox Memorial Fund	100,000.00
Cora Jane Flood Endowment Fund	377,549.02
James M. Goewey Scholarship Fund	16,415.50
Grubstake "W" Loan Fund	454.99
Hammerslag Loan Fund	6,000.00
Hesse Memorial Scholarship Fund	3,800.00
Chas. M. Hitchcock Endowment Fund	10,000.00
George Williams Hooper Endowment Fund	1,000,000.00
Cornelius B. Houghton Scholarship Fund	3,000.00
Samuel C. Irving Prize Fund	500.00
Albert Sidney Johnston Memorial Scholarship Fund	3,500.00
Carrie M. Jones Scholarship Fund	100,000.00
Jucksch Endowment Fund	600.00
Martin Kellogg Fellowship Endowment Fund	20,000.00
Leona Lebus Fund	4,000.00
LeConte Memorial Fellowship Fund	10,400.00
Lick Observatory Fund	90,018.16
Loan Fund No. 2	200.00
Loan Fund No. 3	100.00
John W. Mackay, Jr., Endowment Fund	100,000.00
<i>Carried forward</i>	\$3,852,962.53

[Schedule "M"—Continued]

<i>Brought forward</i>	\$3,852,962.53
Massachusetts Relief Fund Endowment	100,000.00
Medal Loan Fund	347.33
Men's Dormitory Fund	484.67
Eugene Meyer, Jr., Library Endowment Fund	2,000.00
D. O. Mills Fund	170,553.76
Mining Students' Loan Fund	3,115.27
Napa Seminary Loan Fund	670.23
Paget Scholarship Fund	3,009.09
W. Palache Endowment Fund for Hospital	10,000.00
Frank M. Pixley Scholarship Fund	3,563.22
Forestus Phelps Memorial Loan Fund	6,000.00
Prytanean Hospital Fund	215.18
Prytanean Fund for Students' Union	367.14
Prytanean Fund for Women's Dormitory	1,144.90
Oriental Institute Endowment	4,959.55
Michael Reese Library Fund	50,000.00
Richardson Latin Translation Prize Fund	1,600.00
Herman Royer Endowment Fund	4,826.57
San Francisco Girls' Union Scholarship Fund	5,000.00
Sheffield Sanborn Scholarship Fund	15,000.00
San Joaquin Women's Clubs Loan Fund	135.36
Jane K. Sather Campanile Fund (unexpended balance)	21,040.49
Jane K. Sather Classical Chair Fund	120,615.62
Jane K. Sather Historical Chair Fund	105,661.29
Jane K. Sather Historical Library Fund	12,461.68
Jane K. Sather Law Library Fund	21,543.35
Jane K. Sather Library Fund	10,000.00
Jane K. Sather Fund for Esplanade	19,919.74
Jane K. Sather Fund (awaiting distribution)	44,876.98
Snell Seminary Memorial Loan Fund	311.99
Special Senior Class Loan Fund	1,140.63
Horatio Stebbins Scholarship Fund	4,000.00
Students' Co-operative Society Fund	10,794.12
<i>Carried forward</i>	\$4,608,320.69

[Schedule "M"—Continued]

<i>Brought forward</i>	\$4,608,320.69
Summer Session Endowment	6,000.00
Bertha Henicke Taussig Memorial Scholarship Fund	10,000.00
Willard D. Thompson Memorial Fund	55,141.98
Edward Tompkins Endowment Fund	106,829.09
University Hospital Building Fund (unexpended balance)	162,334.53
University Hospital Endowment Fund	649.68
University Hospital Endowment Fund (J. B. Reinstein)	1,000.00
University Hospital Endowment Fund (San Francisco Maternity)	10,000.00
University Medal Fund	3,896.00
University Endowment Fund	70,592.66
Veltin Endowment	1,000.00
F. J. Walton Memorial Loan Fund	7,418.85
Barbara Weinstock Lectureship Fund	6,850.00
Whiting Fund	25,000.00
J. Clute Wilmerding Endowment Fund	449,000.00
Women's Dormitory Fund	2,573.07
Y. W. C. A. Endowment Fund	6,000.00
	<hr/>
	\$5,532,606.55
	<hr/> <hr/>

[Schedule "N"]

FUND INCOME ACCOUNTS

BALANCES ON HAND OF INCOME OF ENDOWMENTS

Alumnus Book Fund interest	\$224.67
Class of 1874 Library Fund interest	25.85
Class of 1887 Library Fund interest	22.39
Class of 1897 Library Fund interest	39.50
Class of 1902 Library Fund interest	4.26
Class of 1907 Permanent Endowment (Books) Fund interest....	29.07
Edith Claypole Memorial Fund interest	725.00
Thérèse F. Colin European Fellowship Fund interest	359.84
Thérèse F. Colin European Fellowship Fund interest, No. 2	49.71
Wm. R. Davis Scholarship Fund interest	88.04
E. A. Denicke Library Fund interest	260.83
Helen Du Bois Endowment Fund interest	6.27
Dolbeer Scholarship Fund interest	89.04
J. M. Goewey Scholarship Fund interest	372.55
Hamerslag Loan Fund Interest	2,151.64
C. M. Hitchcock Endowment Fund interest	1,493.36
C. B. Houghton Scholarship Fund interest	12.07
S. C. Irving Prize Fund interest	13.60
A. S. Johnston Memorial Scholarship Fund interest	123.78
C. M. Jones Scholarship Fund interest	51.59
M. Kellogg Fellowship Fund interest	200.00
LeConte Memorial Fellowship Fund interest	44.30
J. W. Mackay, Jr., Endowment Fund interest	12,094.45
E. Meyer, Jr., Library Fund interest	96.24
D. O. Mills Endowment Fund interest	2,773.16
Paget Scholarship Fund interest	160.69
F. M. Pixley Scholarship Fund interest	115.71
M. Reese Library Fund interest	4,057.92
S. Sanborn Scholarship Fund interest	134.20
Jane K. Sather Law Library Fund interest	74.39
Jane K. Sather Library Fund interest	1,253.96
Horatio Stebbins Scholarship Fund interest	9.16
Summer Session Endowment Fund interest	1,542.05
W. D. Thompson Memorial Endowment Fund interest	112.29
Edward Tompkins Endowment Fund interest	3,471.83
University Medal Fund interest	652.94
Bertha H. Taussig Endowment Fund interest	231.62
Veltin Endowment Fund interest	165.22
B. Weinstock Lectureship Fund interest	1,101.10
Whiting Fund interest	472.13

\$34,906.42

[Schedule "O"]

DONATION ACCOUNTS—BALANCES OF DONATIONS

Carnegie Foundation for Advancement of Teaching	\$.58
Congregation Emanu-el for School of Archaeology in Jerusalem	100.00
Class of 1910, Bridge over Strawberry Creek	112.08
Ethel W. Crocker for Mexican Archaeological Research	1,037.64
Donation to Dental Department for books	25.00
Donation by J. J. Guggenhime for Grunebaum Collection	100.00
M. Herzstein for Physiological Laboratory	775.76
Mrs. Hearst Donation to Architecture .....	.04
Sir R. McBride for Academy of Pacific Coast History	500.00
Donation for marble chairs in Greek Theatre	198.81
Donation by Harry East Miller for Bacteriology	38.00
Geo. L. Foote—Music	45.75
Pacific Coast Gas Association for Course in Gas Engineering	4,818.59
Donation to Palaeontology by a Friend	334.33
Donation to Scripps Institution for Biological Research	9,567.59
Donation to Scripps Institution for Library books	1,058.69
Donations for Stadium	100.00
Donation for Students' Infirmary	50.00
Donation for Summer Session (course in Latin American affairs) ..	250.00
Donation for Zoology by Class of 1911	5.08
Donation for Zoology by Margaret Fowler	76.27
Donation for Lectures by I. W. Hellman, Jr.	2,500.00
Donation for University Hospital, Crutch and Splint Fund	141.00
Donation for University Hospital, equipment	5,616.50
Donation for Sather Gateway by Jane K. Sather	4,097.71
Donation for Senior Hall additions	198.04
Donation for experiment in nitrogen fertilizer	3.55
Alumna Scholarship	250.00
C. Allen Scholarship	125.00
F. M. Anderson Graduate Fellowship	500.00
Phoebe A. Hearst Scholarships	390.00
F. M. Smith Scholarship	48.05
Native Sons of the Golden West Fellowships	5.00
State of California Scholarships	262.50
Levi Strauss Scholarships	187.50
Anna M. Tientjen Scholarship	62.50
Eleanor Gates Scholarship	600.00
Swedish-American Patriotic League Scholarships	62.50
J. F. Fugazi—Donation for Architectural books	100.00
History 1—Donation to Library	161.31

Carried forward \$34,505.37

[Schedule "O"—Continued]

<i>Brought forward</i>	\$34,595.37
E. C. Hutchinson donation to Library	55.62
Donation to Library for Irish books	38.89
Mary Lake Memorial donation to Library	37.07
J. K. Moffitt donation to Library	7.72
Spinello donation to Library	46.91
Claus Spreckels donation to Library	210.98
C. Thorsen donation for Anatomical books	12.59
W. H. Crocker donation to Lick Observatory	292.86
Mrs Phoebe A. Hearst donation to Lick Observatory	450.00
D. O. Mills donation to Lick Observatory	4,303.68
W. H. Crocker donation to Lick Observatory for Solar Eclipse	264.10
National Academy of Arts and Sciences, Donation to Lick Ob-	
servatory (Draper Fund)	97.81
	<hr/>
	\$40,523.60
	<hr/>

[Schedule "P"]

BALANCES ON HAND TO BE USED FOR SPECIFIC PURPOSES

Citrus sales	\$516.36	
Dairy sales	1,856.41	
Dairy Certification, Alameda	505.01	
Dairy Certification, San Francisco	637.82	
Agricultural Extension sales	24.68	
Agriculture Directors sales	24.19	
Floriculture sales	41.70	
Hog Serum sales	8,951.13	
Nutrition sales	16.36	
Photographic sales	546.46	
Soil Survey sales	16.45	
University Farm income	1,930.48	
Viticulture sales	9.76	
Veterinary sales	68.98	
		\$15,145.79
Sale of "A Brief Account of Lick Observatory"....	\$260.83	
Sale of Lick Observatory publications	11.75	
Sale of Keeler Volume	246.86	
Sale of Tebtunis Papyri	470.91	
Sale of "Zoe"	8.12	
		998.47
Music and Dramatic		2,063.10
Students' Deposits—Stenography and Typewriting	\$513.15	
Students' Deposits—Law Library	310.53	
Students' Deposits—Dental Special Account	22.50	
		846.18
Summer Session, 1915	\$19,369.44	
Summer Session, 1916	40,448.01	
Summer Session, 1916, Home Economics	1,152.50	
Summer Session, 1916, Manual Training	428.50	
Summer Session, 1916, Music	170.00	
Summer Session, 1916, Public Health	169.94	
Summer Session, 1916, Mechanical and Electrical Engineering	189.00	
		61,927.39
Students' Infirmary		23,917.95
Dentistry Department		1,038.78
University Extension—Dentistry		236.78
1916-1917 State Appropriation—Interest on State bonds and diverted funds		24,922.50
		\$131,096.94

SUNDRY CREDITORS		[Schedule "Q"]
Sundry Vouchers: Bills approved for payment		\$84,389.01
Bills payable		65,000.00
Sundry creditors		3,479.64
Certified checks		900.00
Students' Deposits:		
Agriculture	\$237.22	
Anatomy	10.00	
Astronomy	17.50	
Bacteriology	267.56	
Botany	92.50	
Chemistry	2,504.54	
Dental	1,441.00	
Domestic Art	27.00	
Drawing	5.60	
Key rental	891.43	
Library	225.00	
Mechanics	173.90	
Medicine	113.99	
Mining	4.40	
Physics	1,179.30	
Physiology	218.15	
Zoology	473.68	
		<hr/> 7,882.77
Summer Session—Civil Engineering	\$161.34	
Summer Session—Civil Engineering, Commissary:		
1915	11.43	
1916	538.67	
		<hr/> 711.44
Alumnae Y. W. C. A. of University of California		
Fund interest	\$15.00	
Alumni Association Life Membership Fund interest	109.47	
Class of 1906 Fund interest	15.98	
Class of 1907 Fund interest	63.47	
Class of 1909 Fund interest	63.08	
Class of 1910 Fund interest	146.53	
Class of 1911 Fund interest	83.42	
Class of 1912 Fund interest	9.16	
Class of 1913 Fund interest	5.79	
Class of 1914 Fund interest	32.99	
Class of 1915 Fund interest	37.83	
Y. W. C. A. Endowment Fund interest	150.00	
		<hr/> 732.72
Deposits on plans		5,473.00
Sale of Music syllabi		13.80
		<hr/> <hr/> \$168,582.38

STATISTICS OF THE INFIRMARY

COMPILED BY THE UNIVERSITY PHYSICIAN

MEDICAL EXAMINATION OF INTRANTS, 1915-16

MEN

Number examined, 1144

Abdomen, abnormal	62	Feet, abnormal	2490
Hernia	44	Longitudinal arches—	
Spleen, palpable	15	Right, flat	627
Right kidney, palpable	3	Left, flat	589
Chest, abnormal	175	Anterior arches—	
Barrel	80	Right, flat	722
Flat	68	Left, flat	652
Funnel	14	General development	1144
Pigeon	13	Excellent	6
Ears, abnormal	107	Good	440
Cerumen	66	Fair	504
Chronic suppuration	16	Poor	194
Myringitis	1	Genitalia, abnormal	329
Tubotympanic catarrh	24	Penis, abnormal	279
Eyes, abnormal	705	Circumcision	264
Hypermetropia	191	Hypospadias	3
Simple hyperopic astigmatism	157	Phimosis	12
Compound hyperopic astigmatism	96	Testes, abnormal	50
Myopia	60	Absent, left	2
Simple myopic astigmatism	54	Atrophy, traumatic	12
Compound myopic astigmatism	54	Epididymitis	3
Mixed astigmatism	55	Hydrocele	2
Cataract, congenital	2	Left, enlarged	6
Color blind	10	Right, enlarged	4
Conjunctivitis	7	Left, small	6
Esophoria	2	Right, small	4
Exophoria	2	Undescended—	
Leucoma adherens	3	Right	5
Myopic crescent	5	Left	6
Staphyloma	1	Heart, abnormal	207
Strabismus	4	Arrhythmia	6
Opaque nerve fibre	2	Irregular	3
		Murmur—	
		Aortic systolic	3
		Extra systolic	3
		Mitral systolic	186
		Reduplicated second sound	8

MEDICAL EXAMINATION OF INTRANTS, 1915-16—(Continued)

MEN

Joints, gun-stock deformity	1	Nutrition	1144
Lungs, abnormal	13	Thin	237
Lymph nodes—		Average	857
Cervical	39	Obese	50
Axillary	108	Teeth, perfect	82
Inguinal	140	Teeth, abnormal	1062
Mammary glands, supernumerary....	40	Third molars absent (one	
Nose, abnormal	436	or all)	791
Crusts	1	Other teeth absent	297
Polypus	2	Caries	610
Rhinitis—		Gingivitis	13
Atrophic	4	Pyorrhea	2
Chronic catarrhal	83	Number needing teeth ex-	
Hypertrophic	7	tracted	54
Turgescient	3	Plates	3
Septum, spur	150	Deciduous teeth	11
Septum, deviation	186	Throat, abnormal	151
Skin, abnormal	701	Tonsils—	
Acne—		Absent	50
Back	291	Buried	2
Chest	81	Pathological	42
Face	275	Projecting	27
Neck	5	Thyroid—	
Trunk	2	Enlarged	6
Comedo	1	Goitre	2
Eczema	13	Palpable	22
Hyperhidrosis	1	Vaccinated, no visible scar—	
Psoriasis	3	Never vaccinated	94
Scabies	1	No visible scar	97
Sebaceous cyst	1	History of smallpox	1
Seborrhoea	15	Varicocele, left	52
Tenia versicola	10	Vertebral column—	
Tumor, knee	1	Kyphosis	15
Urticaria	1	Lordosis	17
		Scoliosis	32

HISTORY OF OPERATIONS PREVIOUS TO ENTERING COLLEGE

Abscess of—		Finger, amputation	5
Arm	1	Haemorrhoidectomy	1
Ear	4	Hand, gunshot wound	2
Face	2	Hernotomy	23
Leg	1	Hydrophobia, Pasteur treatment for	1
Neck	2	Kidney	1
Adenoidectomy	167	Leg, dog bite	1
Amygdalitis, operation for	183	Lumbar region	1
Appendectomy	39	Neck, gland, tubercular	12
Circumcision	264	Nose—	
Cyst, sebaceous	3	Polypi	2
Ear—		Turbinates	1
Mastoiditis	7	Rectal	1
Miscellaneous	3	Thoracentosis	4

MEDICAL EXAMINATION OF INTRANTS, 1915-16—(Continued)

MEN

Tumor, operation for	1	Foot	6
Varicocele	8	Hand	2
Miscellaneous—		Head	1
Arm	3	Jaw	2
Ear	2	Knee	3
Eye	11	Nose	15
Elbow	1	Tongue	1
Face	1		

HISTORY OF DISEASES PREVIOUS TO ENTERING COLLEGE

Amygdalitis	146	Neurasthenia	2
Ankylosis	2	Neuritis	2
Appendicitis	52	Otitis media	68
Asthma	1	Paralysis	3
Chicken-pox	556	Peritonitis	1
Chorea	3	Pleurisy	43
Constipation	139	Pneumonia	109
Deafness	1	Rheumatism	62
Diphtheria	110	Scarlet fever	190
Empyema	1	Smallpox	39
Epilepsy	1	Smallpox vaccination	834
Erysipelas	1	Spinal meningitis	1
Glasses	307	Syphilis	2
Gonorrhea	25	Tuberculosis, pulmonary	8
Hammer-toe	3	Typhoid fever	100
Influenza	101	Anti-typhoid inoculations	46
Malaria	149	Typhus fever	1
Measles	976	Varicose veins	1
Mumps	636	Whooping cough	655

HISTORY OF INJURIES PREVIOUS TO ENTERING COLLEGE

Abdomen—		Clavicle—	
Hernia	6	Fractured	28
Ankle—		Elbow—	
Dislocated	2	Dislocated	2
Fractured	11	Fractured	4
Sprained	15	Eye—	
Contused	3	Contused	4
Arm—		Lacerated	2
Dislocated	6	Face—	
Fractured	91	Burned	1
Contused	3	Contused	6
Lacerated	1	Finger—	
Chest—		Contused	7
Contused	1	Dislocated	1
Punctured wound of	1	Dog bite	1

MEDICAL EXAMINATION OF INTRANTS, 1915-16—(Continued)

MEN

Fractured	12	Nose—	
Lacerated	3	Contused	1
Foot—		Fractured	30
Burned	1	Rib—	
Contused	3	Fractured	7
Fractured	3	Shoulder—	
Sprained	1	Contused	2
Gun shot	1	Dislocated	3
Hand—		Fractured	5
Burned	1	Skull—	
Contused	5	Fractured	7
Dog bite	1	Lacerated	1
Fractured	3	Sternum—	
Head—		Fractured	1
Burned	1	Thigh—	
Contused	4	Burned	1
Jaw—		Contused	1
Fractured	3	Toe—	
Knee—		Contused	1
Contused	7	Wrist—	
Dislocated	5	Contused	3
Sprained	3	Dislocated	1
Lacerated	1	Fractured	22
Leg—		Sprain	3
Burned	2	Miscellaneous—	
Contused	4	Gunshot wound	1
Fractured	37	Knife wound	1
		Multiple contusions	5

MEDICAL EXAMINATION OF INTRANTS, 1915-16

WOMEN

Number examined, 1115

Abdomen, abnormal	103	Good	693
Hernia	4	Fair	352
Nephroptosis	6	Poor	43
Right kidney, palpable	84	Heart, abnormal	68
Left kidney, palpable	6	Mitral regurgitation without	
Tumor	3	decompensation	31
Blood pressure above 130	2	Mitral regurgitation with	
Chest, abnormal	120	decompensation	2
Asymmetry	29	Mitral stenosis	2
Barrel	1	Aortic regurgitation	1
Depressed	9	Functional murmurs—	
Flat	44	Pulmonic or mitral, non-	
Funnel	1	transmissible	22
Pigeon	35	Dilatation	6
Paralytic	1	Arrhythmia	4
Ears, abnormal	139	Lungs, abnormal	12
Cerumen	105	Asthma, bronchial	2
Chronic suppuration	11	Active, tuberculosis	1
Tubotympanic catarrh	23	Arrested tuberculosis	2
Eyes, abnormal	656	Thickened pleura	3
Hypermetropia	171	Unclassified	4
Simple hyperopic astigmatism	105	Lymph nodes	452
Compound hyperopic astigmatism	93	Cervical	374
Myopia	58	Axillary	45
Simple myopic astigmatism	73	Inguinal	33
Compound myopic astigmatism	70	Menstrual disorders—	
Mixed astigmatism	52	Menses—	
Blepharitis marginalis	4	Irregular	165
Cataract, congenital	1	Scanty	46
Conjunctivitis	2	Profuse	68
Esophoria	2	Pain, severe	216
Myopic crescent	2	Pain, slight	257
Strabismus	6	Leucorrhoea	292
Occlusis pupilla	2	Nose, abnormal	156
Presbyopia	10	Rhinitis—	
Feet, abnormal	1235	Atrophic	2
Longitudinal arches—		Chronic catarrhal	19
Right, flat	353	Polypus	1
Left, flat	391	Septum, spur	74
Anterior arches—		Septum, deviation	60
Right, flat	382	Nutrition	1115
Left, flat	374	Thin	213
Hammer-toe	4	Average	821
Hallux valgus	131	Obese	81
General development	1115	Skin, abnormal	668
Excellent	27	Acne—	
		Back	317
		Chest	196
		Face	141

MEDICAL EXAMINATION OF INTRANTS, 1915-16—(Continued)

WOMEN

Eczema	5	Tonsils—	
Ichthyosis	2	Absent	56
Psoriasis	1	Buried	1
Tenia versicolor	6	Pathological	53
Teeth, perfect	56	Projecting	6
Teeth, abnormal	1059	Thyroid, abnormal	64
Third molars absent (one		Simple goitre	29
or all)	725	Hyperthyroidism	34
Other teeth absent	251	Hypothyroidism	1
Caries	569	Vaccinated, no visible scar—	
Gingivitis	21	Never vaccinated	75
Pyorrhea	5	No visible scar	97
Number needing teeth ex-		History of smallpox	3
tracted	28	Vertebral column—	
Plates	9	Kyphosis	99
Deciduous teeth	12	Lordosis	15
Throat, abnormal	116	Scoliosis	74

HISTORY OF OPERATIONS PREVIOUS TO ENTERING COLLEGE

Abscess of—		Nose—	
Arm	2	Antrum	1
Jaw	1	Polypi	2
Tonsils	1	Submucous resection	1
Adenoidectomy	126	Turbinectomy	2
Appendectomy	17	Other operations	21
Breast, amputated	2	Ovarotomy	4
Cyst of Neck	1	Perineal	3
Ear—		Toe—	
Mastoid	7	Growth, removal of	1
Operated on	2	Nail, removal of	2
Ectopic pregnancy	1	Tonsilectomy	161
Finger, amputated	1	Tumor—	
Foot, foreign body removed	1	Breast	1
Goitre	1	Face	1
Haemorrhoidectomy	3	Thoracentesis	1
Hand, foreign body removed	1	Uterus—	
Ingrown nail, removal of	2	Dilatation	14
Kidney, floating	1	Curettage	19
Knee, foreign body removed	1	Hysterectomy	1
Neck—		Miscellaneous—	
Gland	11	Ankle	1
Tubercular gland	2	Arm	3
		Eyes	6
		Foot	4

MEDICAL EXAMINATION OF INTRANTS, 1915-16—(Continued)

WOMEN

HISTORY OF DISEASES PREVIOUS TO ENTERING COLLEGE

Amygdalitis	386	Malaria	102
Anaemia	3	Measles	1030
Appendicitis	77	Mumps	643
Asthma	5	Neurasthenia	80
Brain fever	1	Neuralgia	2
Bronchitis	11	Neuritis	4
Chicken-pox	719	Otitis media	92
Cholera	1	Peritonitis	2
Chorea	7	Pleurisy	46
Colitis	1	Pneumonia	103
Constipation	43	Pyorrhea	1
Diphtheria	112	Rheumatism	76
Dysentery	4	Scarlet fever	198
Erysipelas	2	Smallpox	38
Gastritis	5	Smallpox vaccination	206
Glands, tubercular	3	Spinal meningitis	3
Glasses	378	Taenia saginata	1
Gonorrhea	1	Tonsillar abscess	4
Infantile paralysis	5	Tuberculosis of lungs	4
Influenza	36	Typhoid fever	88
Jaundice	3	Typhoid vaccination	11
Kidney trouble	1	Ulcer, eyeball	1
Lumbago	2	Whooping cough	766

HISTORY OF INJURIES PREVIOUS TO ENTERING COLLEGE

Abdomen—		Elbow—	
Hernia	3	Dislocated	5
Ankle—		Fractured	4
Contused	1	Eye—	
Fractured	5	Lacerated	2
Sprained	9	Face—	
Arm—		Burned	2
Burn	1	Lacerated	2
Dislocated	2	Finger—	
Fractured	53	Dislocated	1
Lacerated	2	Fractured	2
Sprained	2	Foot—	
Back—		Fractured	2
Contused	4	Punctured wound of	1
Strained	4	Hand—	
Chest—		Burned	2
Burned	1	Lacerated	2
Clavicle—		Head—	
Fractured	19	Burned	1
Coccyx—		Lacerated	5
Fractured	2	Hip—	
Concussion of brain	1	Dislocated	2

MEDICAL EXAMINATION OF INTRANTS, 1915-16—(Continued)

WOMEN

Jaw—		Rib—	
Fractured	1	Dislocated	1
Knee—		Fractured	1
Foreign body	1	Shoulder—	
Fractured	1	Burn	1
Lacerated	2	Dislocated	7
Sprained	1	Fractured	1
Leg—		Lacerated	1
Burned	1	Spine—	
Fractured	7	Contused	8
Torn ligament	1	Fractured	1
Lip—		Thigh—	
Dog bite	1	Burned	1
Miscarriage	1	Fractured	2
Multiple contusions	5	Thumb—	
Neck—		Dislocated	1
Burned	1	Fractured	1
Lacerated	1	Vertebrae—	
Nose—		Dislocated	1
Fractured	9	Wrist—	
Lacerated	1	Fractured	2
		Sprained	2

INFIRMARY SUMMARIES

(August 13, 1915-May 17, 1916)

DISPENSARY

	Men	Women	Total
Individuals treated	2,601	1,915	4,516
Number of treatments	23,508	11,743	35,251
Number of diagnoses	7,399	4,660	12,059
Number of smallpox vaccinations	247	226	473
Number of typhoid vaccinations	194	76	270
Number of students entitled to treatment during year			6,286
Number of days open			279
Average number of patients treated daily			126.3
Average number of treatments per patient			7.8
Percentage of students treated			71.8

HOUSE PATIENTS

Discharged—

	Men	Women	Total
Well	475	178	653
Relieved	100	58	158
Not relieved	11	10	21
Deceased	1	...	1
Total number of Infirmary days			3,286
Number of days open			279
Total number of diagnoses			941
Total number of individuals			672
Students who were in the Infirmary more than once during the year			121
Average stay in days			4.9
Average number of patients per day			11.8
Largest number of patients in one day			24
Surgical cases			262
Operations			151
Anaesthesia (general)			109
	Men	Women	Total
Patients examined by X-ray	112	34	146
Prescriptions			392
Laboratory reports—			
Urine analyses			889
Throat cultures			316
Sputum			73
Blood cultures			264
Feces			26
Stomach			15
Miscellaneous			39

INFIRMARY REPORT, 1915-16
MEN AND WOMEN

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
I. GENERAL DISEASES: (International Classification)						
1. Typhoid fever .....	.....	.....	.....	.....	1	1
Anti-typhoid inoculation	194	76	270	.....	1	1
Anti-typhoid inoculation reaction	2	.....	2	.....	1	1
4. Malaria	4	1	5	4	6	10
6. Measles .....	.....	1	1	.....	.....	.....
7. Scarlet fever .....	.....	2	2	1	3	4
9. Diphtheria	3	1	4	3	3	6
Diphtheria carrier	23	1	24	1	2	3
19. Other epidemic diseases—						
Chicken-pox .....	.....	1	1	.....	2	2
German measles .....	.....	.....	.....	.....	1	1
Mumps	1	3	4	1	2	3
Vaccination—						
Vaccinia	207	188	395	2	1	3
Vaccinoid	29	28	57	.....	.....	.....
Reaction of immunity	11	10	21	.....	.....	.....
28. Tuberculosis of lungs	3	5	8	3	1	4
34. Tuberculosis of other organs—						
Tubercular adenitis .....	.....	2	2	1	.....	1
Tubercular adenitis, operation						
for .....	.....	.....	.....	.....	1	1
Tubercular kidney .....	.....	.....	.....	2	.....	2
Tubercular pleura .....	.....	1	1	.....	.....	.....
Tubercular skin .....	.....	1	1	.....	.....	.....
Tubercular spine .....	.....	1	1	.....	.....	.....
36. (c) Curvature of the spine—						
Scoliosis .....	.....	5	5	.....	.....	.....
37. Syphilis	3	.....	3	2	.....	2
38. Gonococcus infection	17	.....	17	3	.....	3
45. Cancer and other malignant						
tumors of other organs—						
Sarcoma of groin	1	.....	1	1	.....	1
46. Other tumors—						
Adenoma of breast .....	.....	1	1	.....	.....	.....
Angioma, of face	2	1	3	.....	.....	.....
Cyst—						
Face	1	.....	1	.....	.....	.....
Mouth	3	.....	3	.....	.....	.....
Neck	1	.....	1	.....	.....	.....
Shoulder, operation for .....	.....	1	1	.....	.....	.....
Retention	3	.....	3	.....	.....	.....
Sebaceous	25	3	28	.....	.....	.....
Sebaceous, operation for	1	1	2	.....	.....	.....
Lipoma	1	.....	1	.....	.....	.....
Papilloma	2	1	3	.....	.....	.....

INFIRMARY REPORT, 1915-16—(Continued)

MEN AND WOMEN

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
Tumor of—						
Breast .....	.....	1	1	.....	.....	.....
Breast, operation for .....	.....	.....	.....	.....	1	1
Abdomen, operation for .....	.....	.....	.....	.....	1	1
47. Acute articular rheumatism	3	.....	3	1	.....	1
48. (b) Rheumatism, chronic articular	2	.....	2	.....	.....	.....
50. Diabetes—						
Diabetes mellitus .....	.....	1	1	.....	1	1
51. Exophthalmic goitre .....	.....	5	5	.....	.....	.....
54. Anaemia .....	.....	13	13	.....	1	1
55. Other general diseases—						
Obesity	1	2	3	.....	.....	.....
II. DISEASES OF THE NERVOUS SYSTEM:						
66. Paralysis without specified cause—						
Paralysis, of face .....	.....	1	1	.....	.....	.....
Paralysis, of foot .....	.....	1	1	.....	.....	.....
Paralysis, of leg .....	.....	1	1	.....	.....	.....
68. Other diseases of mental alienation—						
Dementia praecox	1	1	2	1	2	3
Phychasthenia .....	.....	2	2	.....	2	2
69. Epilepsy .....	.....	1	1	.....	.....	.....
72. Chorea .....	.....	1	1	.....	.....	.....
73. Neuralgia and neuritis—						
Hysteria	1	1	2	1	.....	1
Neuralgia	15	19	34	.....	2	2
Neuritis .....	.....	13	13	.....	4	4
74. Other diseases of the nervous system—						
Angioneurotic oedema	1	.....	1	.....	.....	.....
Neurasthenia	30	49	79	1	5	6
Stammering	1	.....	1	.....	.....	.....
Syncope	2	4	6	.....	3	3
Tic, convulsive .....	.....	1	1	.....	.....	.....
Vertigo	2	1	3	.....	.....	.....
75. Diseases of the eyes and their annexa—						
(a) Conjunctivitis—						
Acute	80	43	123	5	3	8
Chronic	8	.....	8	.....	.....	.....
Phlyctenular	1	.....	1	.....	.....	.....
Pneumococcic	4	.....	4	4	.....	4
(c) Astigmatism—						
Simple hyperopic	26	15	41	.....	.....	.....
Compound hyperopic	86	56	142	.....	.....	.....
Simple myopic	17	16	33	.....	.....	.....
Compound myopic	37	25	62	.....	.....	.....
Mixed astigmatism	14	8	22	.....	.....	.....

INFIRMARY REPORT, 1915-16—(Continued)

MEN AND WOMEN

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
Blepharitis	16	17	33	.....	.....	.....
Chalazion	2	2	4	.....	.....	.....
Chalazion, operation for	1	1	2	.....	.....	.....
Conjunctival burn	1	.....	1	.....	.....	.....
Emmetropia .....	.....	6	6	.....	.....	.....
Esophoria .....	.....	2	2	.....	.....	.....
Emphysema of lids	1	.....	1	.....	.....	.....
Exophoria	2	4	6	.....	.....	.....
Foreign body	16	6	22	.....	.....	.....
Hordeolum	45	18	63	.....	.....	.....
Hyperopia	31	33	64	.....	.....	.....
Hyperphoria	1	.....	1	.....	.....	.....
Iridocyclitis .....	.....	2	2	.....	.....	.....
Keratitis .....	.....	1	1	.....	.....	.....
Myopia	14	12	26	.....	.....	.....
Paralysis of ocular muscle.....	1	.....	1	.....	.....	.....
Presbyopia	2	1	3	.....	.....	.....
Pterygium	1	1	2	.....	.....	.....
Subconjunctival haemorrhage	4	.....	4	.....	.....	.....
76. Diseases of the ears—						
Cerumen, accumulation of	61	57	118	.....	.....	.....
Congestion, eustachian tube	2	.....	2	.....	.....	.....
Eustachian salpingitis .....	.....	4	4	.....	.....	.....
Haematoma	5	.....	5	.....	.....	.....
Myringitis	7	7	14	.....	1	1
Otitis media, acute	12	10	22	7	1	8
Otitis media, chronic	4	2	6	1	.....	1
Traumatic injury to ear-drum....	1	.....	1	.....	.....	.....
III. DISEASES OF THE CIRCULATORY						
SYSTEM:						
78. Acute endocarditis .....	.....	.....	.....	.....	2	2
Myocarditis, acute	1	.....	1	.....	.....	.....
79. Organic diseases of the heart—						
(a) Valvular disease, chronic						
cardiac	3	6	9	1	2	3
(b) Endocarditis, chronic .....	.....	1	1	.....	.....	.....
(c) Arrhythmia, cardiac	2	.....	2	.....	.....	.....
Tachycardia	1	.....	1	.....	.....	.....
80. Angina pectoris .....	.....	.....	.....	.....	1	1
82. Embolism and thrombosis—						
Fat embolism .....	.....	.....	.....	1	.....	1
83. Diseases of the veins—						
Haemorrhoids	25	11	36	.....	.....	.....
Haemorrhoids, operation for ....	.....	.....	.....	1	1	2
Phlebitis, legs .....	.....	.....	.....	1	.....	1
Varicocele	2	.....	2	.....	.....	.....
Varicocele, operation for .....	.....	.....	.....	1	.....	1
Varicose veins	4	3	7	.....	.....	.....

INFIRMARY REPORT, 1915-16—(Continued)

MEN AND WOMEN

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
84. Diseases of the lymphatic system—						
Lymphadenitis	1	1	2	.....	.....	.....
Lymphangitis	1	.....	1	.....	.....	.....
85. Haemorrhage—						
Epistaxis	9	5	14	3	.....	3
IV. DISEASES OF THE RESPIRATORY SYSTEM—						
86. Diseases of the nasal fossae—						
Adenoids	1	2	3	.....	.....	.....
Adenoids, operation for .....	.....	.....	.....	1	.....	1
Catarrh, tubotympanic	5	7	12	.....	.....	.....
Deviated septum	6	3	9	.....	.....	.....
Deviated septum, operation for	13	1	14	14	1	15
Ozaena	2	.....	2	.....	.....	.....
Polypus, nasal	5	1	6	.....	.....	.....
Polypus, operation for	5	.....	5	.....	.....	.....
Rhinitis, acute	1227	806	2033	3	8	11
Rhinitis, chronic	13	25	38	1	.....	1
Septum spur, operation for	10	4	14	1	.....	1
Antrum, chronic suppuration	1	.....	1	.....	.....	.....
Antrum, chronic suppuration, operation for	1	.....	1	.....	.....	.....
Turbinate, operation for	5	2	7	3	.....	3
Ulcer, nose	5	1	6	3	.....	3
87. Diseases of the larynx—						
Laryngitis	59	78	137	2	8	10
88. Diseases of the thyroid body—						
Adenitis—						
Axillary	2	3	5	.....	.....	.....
Cervical	3	7	10	2	1	3
Inguinal	12	.....	12	.....	.....	.....
Hyperthyroidism .....	.....	22	22	.....	.....	.....
89. Acute bronchitis—						
Bronchitis, acute	23	12	35	6	5	11
Tracheitis	403	145	548	66	23	89
90. Chronic bronchitis—						
Bronchitis, chronic	3	1	4	.....	.....	.....
91. Bronchopneumonia .....	.....	1	1	.....	3	3
92. Pneumonia, lobar .....	.....	.....	.....	3	.....	3
93. Pleurisy	10	12	22	3	7	10
96. Asthma	8	5	13	7	2	9
98. Other diseases of the respiratory system—						
Hay fever	2	4	6	.....	.....	.....

INFIRMARY REPORT, 1915-16—(Continued)

MEN AND WOMEN

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
V. DISEASES OF THE DIGESTIVE SYSTEM:						
99. Diseases of the mouth and anna—						
(a) Diseases of the teeth and gums—						
Abscess alveolar	6	.....	6	4	1	5
Caries	8	.....	8	.....	.....	.....
Erupted wisdom tooth	1	1	2	.....	.....	.....
Gingivitis	3	3	6	.....	.....	.....
Pyorrhea alveolaris	1	.....	1	.....	.....	.....
(b) Other diseases of the mouth and anna—						
Stomatitis	26	21	47	2	.....	2
100. Diseases of the pharynx—						
Abscess, tonsillar	1	2	3	3	1	4
Amygdalolith .....	.....	1	1	.....	.....	.....
Amygdalitis, acute	244	153	397	32	14	44
Amygdalitis, chronic	11	10	21	.....	.....	.....
Amygdalitis, operation for .....	.....	.....	.....	31	19	50
Elongation of uvula	1	.....	1	.....	.....	.....
Elongation of uvula, operation for .....	.....	1	1	.....	.....	.....
Foreign body, tonsil	1	.....	1	.....	.....	.....
Hypertrophy of tonsil .....	.....	7	7	.....	.....	.....
Neurosis of pharynx .....	.....	1	1	.....	.....	.....
Pharyngitis, acute	881	482	1363	157	32	189
Pharyngitis, chronic	9	36	45	.....	.....	.....
Uvulitis .....	.....	1	1	.....	.....	.....
Vincent's angina	4	.....	4	.....	.....	.....
102. Ulcers of the stomach						
.....	1	1	2	1	.....	1
103. Other diseases of the stomach—						
Fermentation, gastric	4	4	8	.....	.....	.....
Gastritis, acute	11	3	14	.....	.....	.....
Gastritis, chronic	2	.....	2	.....	.....	.....
Hyperchlorhydria	9	5	14	1	.....	1
Nervous dyspepsia .....	.....	2	2	.....	.....	.....
105. Diarrhoea and enteritis—						
Colitis .....	.....	4	4	.....	1	1
Duodenal ulcer, chronic	2	.....	2	2	.....	2
Enteritis	60	17	77	18	9	27
Fermentation, intestinal	7	11	18	1	.....	1
Gastro-duodenitis	5	73	78	.....	.....	.....
Gastro-enteritis .....	.....	5	5	.....	.....	.....
107. Intestinal parasites—						
Taenia saginata	2	1	3	3	1	4
Trichiniasis .....	.....	1	1	.....	.....	.....
108. Appendicitis, acute						
.....	27	14	41	14	19	33
Appendicitis, chronic	11	5	16	6	2	8
Appendicitis, operation for .....	.....	.....	.....	16	10	26

INFIRMARY REPORT, 1915-16—(Continued)

MEN AND WOMEN

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
109. Hernias—						
Femoral		1	1			
Inguinal	5		5			
Inguinal, operation for				8		8
Ventral, operation for				1		1
110. Diseases of the intestines—						
(a) Enteroptosis		1	1		1	1
Fissure in ano	3		3			
Fistula, rectovaginal		2	2			
Fistula, intestines	1		1			
Fistula, intestines, operation for				1		1
(b) Abscess about rectum	2		2	1		1
Autointoxication, intestinal....	40		40	3		3
Constipation	158	98	256	5		5
Neurosis, intestinal		1	1			
111. Acute yellow atrophy of the liver—						
Jaundice		1	1		1	1
115. Other diseases of the liver—						
Cholangitis, acute		2	2			
Cholecystitis, acute					1	1
Perihepatitis					1	1
117. Simple peritonitis—						
Adhesions of peritoneum		1	1			

VI. NON-VEREREAL DISEASES OF THE
GENITO-URINARY SYSTEM AND
ANNEXA:

119. Acute nephritis	1		1	1	1	2
122. Other diseases of the kidneys—						
Haematuria, renal	1		1			
Hydronephrosis	1		1			
Nephroptosis		3	3			
Pyelitis	1		1	1		1
Renal colic		1	1	5		5
124. Diseases of the bladder—						
Cystitis	4	5	9	3	3	6
Enuresis, functional		3	3			
125. Diseases of the urethra—						
Abscess about urethra	1		1			
Urethritis, acute	6		6			
126. Diseases of the prostate—						
Prostatitis, chronic	1		1			
127. Non-venereal diseases of the male genito organs—						
Balanoposthitis	19		19			
Epididymitis, acute				1		1

INFIRMARY REPORT, 1915-16—(Continued)

MEN AND WOMEN

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
Hydrocele	4	.....	4	1	.....	1
Hydrocele, operation for .....	.....	.....	.....	1	.....	1
Phimosis	4	.....	4	.....	.....	.....
Phimosis, operation for .....	.....	.....	.....	10	.....	10
Seminal emissions	4	.....	4	.....	.....	.....
128. Uterine haemorrhage—						
Menorrhagia .....	.....	12	12	.....	.....	.....
Metrorrhagia .....	.....	10	10	.....	1	1
130. Other diseases of the uterus—						
(b) Amenorrhoea .....	.....	53	53	.....	.....	.....
Cervicitis .....	.....	3	3	.....	.....	.....
Dysmenorrhoea .....	.....	85	85	.....	4	4
Endometritis, operation for....	.....	.....	.....	.....	1	1
Erosion of cervix .....	.....	4	4	.....	.....	.....
Fibroid, uterus .....	.....	1	1	.....	.....	.....
Infantile uterus .....	.....	1	1	.....	.....	.....
Leucorrhoea .....	.....	10	10	.....	.....	.....
Retroversion of uterus .....	.....	1	1	.....	.....	.....
Retroversion of uterus, opera- tion for .....	.....	.....	.....	.....	1	1
132. Salpingitis and other diseases of the female genital organs—						
Ovaritis .....	.....	.....	.....	.....	1	1
Salpingitis .....	.....	.....	.....	.....	2	2
133. Non-puerperal diseases of the breast—						
Mastitis, acute	1	.....	1	.....	.....	.....
VII. THE PUERPERAL STATE:						
134. Accidents of pregnancy—						
Pregnancy .....	.....	1	1	.....	.....	.....
VIII. DISEASES OF THE SKIN:						
142. Gangrene—						
Raynaud's disease .....	.....	3	3	.....	.....	.....
143. Furuncle—						
Abdomen	4	1	5	.....	.....	.....
Anus .....	.....	1	1	.....	.....	.....
Arm	19	3	22	.....	.....	.....
Axilla	3	2	5	2	.....	2
Back	11	2	13	.....	.....	.....
Breast .....	.....	2	2	.....	.....	.....
Buttock	9	2	11	.....	.....	.....
Chest	4	.....	4	.....	.....	.....
Ear	10	4	14	.....	.....	.....
Eyelid	3	2	5	.....	.....	.....
Face	51	43	94	2	3	5
Finger	6	.....	6	2	.....	2

INFIRMARY REPORT, 1915-16—(Continued)

MEN AND WOMEN

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
Foot	4	.....	4	1	.....	1
Hand	5	.....	5	1	.....	1
Head	10	.....	10	1	.....	1
Leg	13	4	17	.....	.....	.....
Neck	132	8	140	.....	.....	.....
Nose	17	9	26	1	.....	1
Penis	3	.....	3	.....	.....	.....
Scrotum	1	.....	1	.....	.....	.....
Shoulder	3	.....	3	2	.....	2
Thigh	11	3	14	.....	.....	.....
Wrist	6	3	9	1	.....	1
Miscellaneous	1	3	4	.....	.....	.....
Carbuncle of—						
Face .....	.....	.....	.....	.....	1	1
Neck	1	.....	1	2	.....	2
Toe .....	.....	.....	.....	1	.....	1
144. Acute abscess—						
Anus	1	.....	1	.....	.....	.....
Arm	2	.....	2	.....	.....	.....
Axilla	1	.....	1	.....	.....	.....
Ear	3	.....	3	.....	.....	.....
Eyelid	1	.....	1	.....	.....	.....
Face	1	.....	1	.....	.....	.....
Finger	2	8	10	.....	.....	.....
Foot	4	.....	4	.....	.....	.....
Gum .....	.....	1	1	.....	.....	.....
Hand	3	2	5	.....	.....	.....
Leg	2	.....	2	1	.....	1
Nose	1	.....	1	.....	.....	.....
Post-operation	1	.....	1	.....	.....	.....
Cellulitis of—						
Ankle	2	1	3	1	.....	1
Arm	5	.....	5	4	.....	4
Ear	4	2	6	.....	1	1
Eyelid	3	8	11	.....	.....	.....
Face	2	7	9	1	.....	1
Finger	24	24	48	1	.....	1
Foot	51	15	66	19	1	20
Gum	3	1	4	.....	.....	.....
Hand	5	4	9	1	.....	1
Jaw .....	.....	.....	.....	1	.....	1
Leg	4	6	10	2	1	3
Nose	1	.....	1	.....	.....	.....
Scalp	2	.....	2	1	.....	1
Shoulder	1	.....	1	.....	.....	.....
Thigh	1	.....	1	.....	.....	.....
Wrist	1	.....	1	.....	.....	.....

INFIRMARY REPORT, 1915-16—(Continued)

MEN AND WOMEN

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
145. Other diseases of the skin—						
(a) Trichophytosis	101	13	114	.....	.....	.....
(b) Scabies	10	4	14	.....	.....	.....
(c) Other diseases of the Skin—						
Acne	58	52	110	.....	.....	.....
Alopecia areata	4	13	17	.....	.....	.....
Bromidrosis	2	.....	2	.....	.....	.....
Callositas	7	1	8	.....	.....	.....
Chilblain	10	28	38	.....	.....	.....
Clavus	52	41	93	.....	.....	.....
Chromophytosis	3	.....	3	.....	.....	.....
Comedo	3	2	5	.....	.....	.....
Dermatitis exfoliativa	1	.....	1	.....	.....	.....
Dermatitis herpetiformis.....	.....	1	1	.....	.....	.....
Dermatitis medicamentosa	2	2	4	.....	.....	.....
Dermatitis intestinal .....	.....	.....	.....	.....	1	1
Dermatitis venenata	209	161	370	14	9	23
Eczema	87	47	134	3	1	4
Erythema multiforme .....	.....	2	2	.....	.....	.....
Erythema nodosum	2	3	5	.....	1	1
Erythema simplex .....	.....	1	1	.....	.....	.....
Fibroma	3	.....	3	.....	.....	.....
Folliculitis .....	.....	1	1	.....	.....	.....
Fissure	15	4	19	.....	.....	.....
Herpes	39	25	64	.....	.....	.....
Hyperidrosis	7	2	9	.....	.....	.....
Ichthyosis .....	.....	2	2	.....	.....	.....
Impetigo contagiosa	60	15	75	.....	.....	.....
Lichen planus .....	.....	1	1	.....	.....	.....
Lupus erythematosus	1	.....	1	.....	.....	.....
Miliaria	1	.....	1	.....	.....	.....
Molluscum contagiosum	2	.....	2	.....	.....	.....
Oedema .....	.....	2	2	.....	.....	.....
Parasitic diseases—						
Paraesthesia	1	.....	1	.....	.....	.....
Phtheiriasis	9	.....	9	.....	.....	.....
Pityriasis rosea	3	3	6	.....	.....	.....
Pruritis ani	5	.....	5	.....	.....	.....
Pruritis vulvae .....	.....	1	1	.....	.....	.....
Psoriasis	3	3	6	.....	.....	.....
Seborrhoea	10	36	46	.....	.....	.....
Syccosis, coccogenous	1	.....	1	.....	.....	.....
Ulcer	4	.....	4	.....	.....	.....
Urticaria	38	33	71	1	.....	1
Warts—						
Arm	2	.....	2	.....	.....	.....
Eyelid	1	.....	1	.....	.....	.....

INFIRMARY REPORT, 1915-16—(Continued)

MEN AND WOMEN

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
Face	5	.....	5	.....	.....	.....
Finger	14	14	28	.....	.....	.....
Foot	59	10	69	.....	.....	.....
Hand	49	24	73	.....	.....	.....
Head	5	.....	5	.....	.....	.....
Neck	2	.....	2	.....	.....	.....
Nose	1	.....	1	.....	.....	.....
Penis	1	.....	1	.....	.....	.....
Zoster	2	2	4	.....	.....	.....
Nails—						
Ingrowing nail	34	6	40	.....	.....	.....
Onychia .....	.....	1	1	.....	.....	.....
Paronychia	17	23	40	.....	.....	.....
Onychoma	1	.....	1	.....	.....	.....
Ingrowing hair	2	.....	2	.....	.....	.....

IX. DISEASES OF THE BONES AND OF
THE ORGANS OF LOCOMOTION:

146. Diseases of the bones—

Antral sinus	1	1	2	2	.....	2
Ethmoidal sinus .....	.....	1	1	.....	.....	.....
Frontal sinus	11	8	19	5	2	7
Maxillary sinus	1	.....	1	1	.....	1
Mastoiditis, operation for .....	.....	.....	.....	1	.....	1
Osteomyelitis	3	.....	3	.....	.....	.....
Periostitis, chronic .....	.....	2	2	1	.....	1

147. Diseases of the joints—

Arthritis	7	2	9	.....	.....	.....
Arthritis, toe, operation for .....	.....	.....	.....	1	.....	1
Synovitis	19	2	21	1	.....	1
Toxic joints .....	.....	7	7	.....	1	1

149. Other diseases of the organs of
locomotion—

Bursitis	6	4	10	.....	.....	.....
Flat foot	34	97	131	.....	.....	.....
Ganglion	3	6	9	.....	.....	.....
Ganglion, operation for .....	.....	2	2	.....	1	1
Hallux valgus	3	4	7	.....	.....	.....
Myositis	31	35	66	.....	.....	.....
Hypertrophy of knee .....	.....	2	2	.....	.....	.....
Rheumatism, muscular	8	.....	8	.....	.....	.....
Talipes .....	.....	1	1	.....	.....	.....
Tenosynovitis	13	11	24	.....	.....	.....
Tendonorrhaphy .....	.....	.....	.....	1	.....	1
Torticollis	3	5	8	.....	.....	.....
Wen	1	.....	1	.....	.....	.....
Writers' cramp .....	.....	1	1	.....	.....	.....

INFIRMARY REPORT, 1915-16—(Continued)

MEN AND WOMEN

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
X. MALFORMATIONS:						
150. Congenital malformations—						
Congenital malformation, leg ....	.....	1	1	.....	.....	.....
Naevus	3	1	4	.....	.....	.....
XIII. AFFECTIONS PRODUCED BY EXTERNAL CAUSES:						
164. Poisoning by food	5	8	13	.....	.....	.....
165. Other acute poisonings—						
(a) Venomous bites and stings—						
Insect sting	14	24	38	1	.....	1
(b) Other acute poisonings—						
Acetanilide poisoning, acute	1	.....	1	.....	.....	.....
Nicotine poisoning	1	.....	1	.....	.....	.....
Novocaine .....	.....	.....	.....	1	.....	1
167. Burns—						
Abdomen	1	.....	1	.....	.....	.....
Arm	9	10	19	.....	.....	.....
Buttock	1	.....	1	.....	.....	.....
Chest .....	.....	1	1	.....	.....	.....
Eye	4	.....	4	2	.....	2
Face	7	4	11	1	.....	1
Finger	11	7	18	.....	.....	.....
Foot	1	1	2	1	.....	1
Hand	14	8	22	.....	.....	.....
Leg	1	5	6	1	.....	1
Mouth	1	7	8	.....	.....	.....
Neck	4	1	5	.....	.....	.....
Nose	1	.....	1	.....	.....	.....
Shoulders	2	.....	2	.....	.....	.....
Thigh	1	.....	1	.....	.....	.....
Scrotum .....	.....	.....	.....	1	.....	1
Wrist	4	3	7	.....	.....	.....
Sunburn	5	4	9	.....	.....	.....
171. Traumatism by cutting or piercing instruments—						
Arm	4	3	7	.....	.....	.....
Back .....	.....	1	1	.....	.....	.....
Chest	1	.....	1	.....	.....	.....
Ear	3	.....	3	.....	.....	.....
Eyelid	7	.....	7	.....	.....	.....
Face	23	1	24	2	.....	2
Finger	69	31	100	1	.....	1
Foot	11	4	15	1	.....	1
Hand	23	3	26	.....	.....	.....
Head	22	3	25	.....	.....	.....
Leg	7	1	8	1	.....	1

INFIRMARY REPORT, 1915-16—(Continued)

MEN AND WOMEN

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
Mouth	2	.....	2	.....	.....	.....
Nose	5	.....	5	.....	.....	.....
Thigh	1	.....	1	.....	.....	.....
Wrist	2	1	3	.....	.....	.....
176. Injuries by animals—						
Cat bite	3	.....	3	.....	.....	.....
Dog bite	5	.....	5	.....	.....	.....
Rabbit bite .....	.....	1	1	.....	.....	.....
185. Fractures—						
(a) Dislocations—						
Arm .....	.....	.....	.....	1	.....	1
Clavicle	1	.....	1	.....	.....	.....
Finger	4	1	5	.....	.....	.....
Elbow	1	.....	1	.....	.....	.....
Knee	2	.....	2	.....	.....	.....
Sacro-iliac	5	4	9	2	.....	2
Shoulder	4	.....	4	.....	.....	.....
(b) Sprains—						
Ankle	52	39	91	3	10	13
Arm .....	.....	1	1	.....	.....	.....
Back	3	4	7	.....	.....	.....
Claviculo-acromion	1	.....	1	.....	.....	.....
Elbow	5	1	6	1	.....	1
Finger	60	5	65	.....	.....	.....
Foot	33	9	42	1	.....	1
Hand	3	2	5	.....	.....	.....
Knee	24	4	28	2	.....	2
Shoulder	7	.....	7	.....	.....	.....
Thigh	2	.....	2	.....	.....	.....
Toe	9	.....	9	.....	.....	.....
Wrist	21	5	26	1	.....	1
(c) Fractures—						
Ankle .....	.....	1	1	.....	1	1
Arm	9	1	10	5	.....	5
Clavicle	6	.....	6	3	.....	3
Finger	8	.....	8	.....	.....	.....
Foot	5	1	6	2	1	3
Jaw	2	.....	2	2	.....	2
Leg	2	.....	2	6	.....	6
Nose	3	.....	3	.....	.....	.....
Wrist	3	.....	3	.....	.....	.....
Ruptured muscle tendon .....	.....	.....	.....	1	.....	1
186. Other external violence—						
I. Organs and special structures—						
Strain of muscle of—						
Abdomen	13	.....	13	.....	.....	.....
Ankle	9	5	14	.....	.....	.....
Arm	6	1	7	.....	.....	.....

INFIRMARY REPORT, 1915-16—(Continued)

MEN AND WOMEN

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
Back	42	20	62	1	.....	1
Chest	22	.....	22	.....	.....	.....
Elbow	2	.....	2	.....	.....	.....
Face	1	.....	1	.....	.....	.....
Finger	4	2	6	.....	.....	.....
Foot	34	18	52	.....	.....	.....
Groin	1	.....	1	.....	.....	.....
Hand	3	.....	3	.....	.....	.....
Hip	1	.....	1	.....	.....	.....
Leg	9	6	15	.....	.....	.....
Neck	10	.....	10	.....	.....	.....
Shoulder	13	1	14	.....	.....	.....
Thigh	11	.....	11	2	.....	2
Wrist	2	1	3	.....	.....	.....
Miscellaneous	1	.....	1	.....	.....	.....
Concussion of brain	4	.....	4	8	.....	8

II. Regions—

Contusions and abrasions of—

Abdomen	2	.....	2	.....	.....	.....
Ankle	10	2	12	.....	.....	.....
Arm	19	8	27	1	.....	1
Axilla	1	.....	1	.....	.....	.....
Back	3	5	8	.....	.....	.....
Buttock	19	1	20	.....	.....	.....
Chest	8	.....	8	1	.....	1
Coccyx .....	.....	3	3	.....	.....	.....
Ear	6	1	7	.....	.....	.....
Elbow	25	4	29	.....	.....	.....
Eye	13	1	14	1	.....	1
Face	21	2	23	.....	.....	.....
Finger	77	32	109	.....	.....	.....
Foot	202	44	246	2	.....	2
Groin	3	.....	3	.....	.....	.....
Hand	80	13	93	1	.....	1
Head	8	1	9	1	.....	1
Hip	6	1	7	.....	.....	.....
Jaw	2	.....	2	.....	.....	.....
Knee	98	20	118	.....	.....	.....
Leg	31	5	36	.....	.....	.....
Lip	15	.....	15	.....	.....	.....
Mouth	1	.....	1	.....	.....	.....
Neck	3	.....	3	1	.....	1
Nose	18	2	20	.....	.....	.....
Rib	3	.....	3	.....	.....	.....
Scrotum	4	.....	4	.....	.....	.....
Shoulder	11	3	14	2	.....	2
Thigh	13	1	14	.....	.....	.....

INFIRMARY REPORT, 1915-16—(Continued)

MEN AND WOMEN

Diseases	Dispensary Patients			House Patients		
	Men	Women	Total	Men	Women	Total
Wrist	6	2	8	.....	.....	.....
Multiple contusions	1	.....	1	1	.....	1
Miscellaneous	2	1	3	.....	.....	.....
Foreign body—						
Arm	2	1	3	.....	.....	.....
Ear	2	.....	2	.....	.....	.....
Finger	10	8	18	.....	.....	.....
Foot	3	2	5	.....	.....	.....
Hand	1	.....	1	.....	.....	.....
Leg	3	3	6	.....	.....	.....
Neck .....	..	1	1	.....	.....	.....
Nose	1	.....	1	.....	.....	.....
Shoulder	1	.....	1	.....	.....	.....
Throat .....	.....	2	2	.....	.....	.....

XIV. ILL-DEFINED DISEASES:

189. Unclassified or ill defined—

(a) Diseases not specified—

Headache	32	53	85	1	1	2
Insomnia	7	9	16	.....	.....	.....
Unknown	1	3	4	1	3	4

(b) No disease; feigned disease—

Hygiene advice	11	1	12	.....	.....	.....
Malnutrition	1	.....	1	.....	.....	.....
No diagnosis	11	22	33	.....	.....	.....
No disease	18	48	66	.....	7	7
Normal	21	.....	21	.....	.....	.....
Operation wound	1	1	2	.....	.....	.....

STATISTICAL ADDENDA

COMPILED BY THE RECORDER OF THE FACULTIES

TABLE 1.—Summaries of officers of instruction in the colleges at Berkeley, 1895–1916.

Year	Professors		Assoc. Profs.	Asst. Profs.	Lectrs.	Instrs.	Dept. Assts.*	Teaching Fellows	Total
	Acting Profs.	Emer. Profs.							
1895–96	21	....	10	13	0	26	37	6	113
1896–97	22	....	10	18	0	21	28	8	107
1897–98	25	....	8	25	2	35	26	6	127
1898–99	30	1	14	19	1	40	36	0	141
1899–1900	29	2	15	20	2	40	40	5	153
1900–01	31	2	14	19	2	41	45	2	156
1901–02	29	1	13	22	5	56	43	0	169
1902–03	34	1	12	26	14	64	48	4	203
1903–04	36	2	14	42	14	51	60	3	222
1904–05	39	1	16	48	16	45	86	3	254
1905–06	37	3	18	51	14	55	82	3	263
1906–07	40	3	19	57	14	46	94	3	276
1907–08	44	3	22	59	12	47	104	4	295
1908–09	50	3	28	62	14	53	100	6	316
1909–10	55	8	23	70	14	52	118	7	347
1910–11	47	10	29	64	14	57	75	7	303
1911–12	48	9	42	57	18	81	110	9	374
1912–13	55	8	38	61	17	77	121	16	393
1913–14	72	6	33	82	16	87	114	14	424
1914–15	73	10	43	95	20	83	169	16	509
1915–16	68	10	50	78	20	83	168	26	503

* Including readers.

TABLE 2.—Officers of instruction in the colleges and departments away from Berkeley.

Year	L. O.	Art	Law	Medicine		P. G. Medicine	Dentistry	Pharm.	Univ. Farm
				S. F.	L. A.				
1897–98	10	6	6	49	....	51	41	10	....
1898–99	11	6	5	68	....	58	43	7	....
1899–1900	11	8	5	70	....	82	45	10	....
1900–01	12	8	5	68	....	94	45	9	....
1901–02	11	8	5	81	....	101	50	11	....
1902–03	12	9	5	50	....	109	46	10	....
1903–04	13	10	6	62	....	28	24	9	....
1904–05	13	9	6	55	....	23	25	8	....
1905–06	9	9	6	66	....	....	22	8	....
1906–07	7	....	6	52	....	....	34	9	....
1907–08	7	11	6	54	....	....	34	8	....
1908–09	8	7	6	54	....	....	31	8	....
1909–10	7	7	6	58	59	....	26	8	....
1910–11	16	9	6	55	61	....	32	8	10
1911–12	16	10	6	55	61	....	31	7	14
1912–13	17	12	6	53	58	....	24	9	....
1913–14	12	8	8	70	58	....	25	9	12
1914–15	14	8	8	80	145	....	25	8	23
1915–16	12	8	6	98	not reported	....	29	10	24

TABLE 3.—Students in the several colleges, 1906-1916.

NOTE.—The upper figures on the left of each group refer to men, the lower to women; the figures on the right side are the totals. The following table does not include students in the following courses of instruction: University Extension, San Francisco Institute of Art, The University Farm School, Short Courses in Agriculture, Correspondence Courses, Farmers' Institutes, Welding School of Industrial Arts.

In Berkeley:	COLLEGE OR SCHOOL	1906-07	1907-08	1908-09	1909-10	1910-1911	1911-12	1912-13	1913-14	1914-15	1915-16
<i>Graduate Students:</i>	.....	148	151	186	214	258	311	344	404	459	555
	.....	133	173	217	243	243	267	304	303	373	477
<i>Undergraduates:</i>	Letters.....	40	39	39	35	59	64	69	71	79	*
	.....	105	93	98	116	113	104	108	105	114	193
	Social Sciences.....	286	311	321	341	365	342	395	462	575	1408
	.....	763	790	732	768	786	736	713	703	746	2223
	Natural Sciences.....	106	124	177	230	349	454	566	727	851	3631
	.....	115	221	96	220	260	408	862	511	591	1337
	Commerce.....	150	177	186	222	258	263	282	282	298	310
	.....	4	154	4	2	224	5	263	13	311	340
	Agriculture.....	117	128	145	191	270	350	429	524	532	537
	.....	10	127	7	152	10	22	372	26	455	28
	Mechanics.....	264	260	293	301	294	316	318	366	361	345
	.....	0	264	0	293	0	294	0	318	0	361
	Mining.....	274	278	261	243	209	160	132	122	102	93
	.....	0	274	0	243	0	209	0	122	0	102
	Civil Engineering.....	219	250	246	232	236	224	224	261	234	196
	.....	0	219	0	232	0	236	0	261	0	234
	Chemistry.....	37	34	47	44	55	56	60	62	69	102
	.....	5	42	3	2	46	0	60	3	65	4
	At Large†.....	.....	6	14	14	[38]†	[29]†	[23]†	[44]†	[3 ]	.....
	.....	.....	8	14	22	[30 68]†	[36 65]†	[37 60]†	[46 90]†	[7 10 ]	.....
	Medicine (1st and 2nd years).....	9	6	.....	21	27	27	52	39	42	31
	.....	1	10	7	5	3	1	28	7	46	5
	Jurisprudence.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	36
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	67
	Architecture.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	69
	† Total Under-graduates }.....	1502	1613	1729	1863	2122	2266	2527	2916	3041	3001
	.....	1003	2505	977	2610	1179	1336	1567	1787	2054	2285
	Total in the Colleges at Berkeley (deducting for duplicates).....	1643	1760	1907	2067	2343	2539	2821	3285	3454	3491
	Percentage of men, departments at Berkeley.....	1118	1156	1216	1285	1403	1573	1746	2064	2394	2706
	.....	59.51	60.36	61.85	61.66	62.55	61.74	60.44	61.41	59.06	56.28

* Letters and Science, distributed among the several colleges.

† In the above table, 1910-11 to 1913-14 inclusive, students at large are summarized separately, and are also distributed among the several colleges.

TABLE 3—(Continued).

	1906-07	1907-08	1908-09	1909-10	1910-11	1911-12	1912-13	1913-14	1914-15	1915-16
Lick Observatory, Mt. Hamilton:	1 1	3 0	3 0	1 1	1 2	2 0	0 0	0 0	2 0	2 0
In San Francisco:										
Hastings College of the Law.....	73 1	69 0	98 2	116 1	104 1	117 2	100 0	88 0	71 2	76 0
*Medical School.....	35 5	25 1	28 7	39 10	18 0	16 2	17 3	24 7	37 6	49 9
(3rd and 4th years)										
College of Dentistry.....	64 1	69 0	53 0	57 0	64 0	77 1	90 0	93 0	109 2	138 1
California College of Pharmacy.....	43 4	42 3	62 5	67 5	78 7	79 1	95 3	113 4	91 4	91 5
Total in the Colleges } in San Francisco }	215 11	205 4	241 14	279 16	264 8	289 6	302 6	318 11	310 14	354 15
In Los Angeles:										
Total in the University (deducting for duplicates).....	1858 1129	1965 3125	2127 1184	2552 1301	2631 1417	2842 1579	3128 1852	3806 2074	3764 2408	3874 6172
Summer Session.....	320 377	258 264	317 344	381 438	460 591	562 1419	676 1399	783 1580	982 2197	1488 3876
Total.....	2188 1506	2923 1424	2444 1528	2733 1739	3091 2008	3404 2998	3804 3451	4389 3654	4746 4605	5362 9551
Deduct for duplicate registrations in Summer Session and in Fall session following.....	204	154	109	189	245	293	220 183	299 218	324 289	431 355
Grand Total.....	3490	3493	3863	4283	4854	6109	3584 3268	40 6852	4422 4316	4931 6243

* Up to and including 1905-06 figures for Medical School include four classes; beginning 1906-07 only third and fourth years are given, figures for first and second years being included in "Students in Berkeley," graduate and undergraduate.

TABLE 4.—Showing proportion (per cent) of the undergraduates, including special students, in each of the colleges at Berkeley.

	1903-04	1904-05	1905-06	1906-07	1907-08	1908-09	1909-10	1910-11	1911-12	1912-13	1913-14	1914-15	1915-16
Letters	9.54	8.70	7.70	5.70	5.05	5.07	5.11	5.21	4.66	4.30	3.74	3.80	†
Social Sciences	40.24	41.06	41.84	41.87	42.14	39.01	37.52	34.86	31.60	31.90	31.83	36.72	66.79
Natural Sciences	7.89	7.65	7.58	8.82	8.42	10.41	13.54	18.45	23.93	26.31	28.11	26.24	
Commerce	4.89	5.06	5.71	6.14	6.78	7.03	7.50	7.96	7.44	7.01	6.30	6.11	6.25
Agriculture	4.19	4.29	4.88	5.07	5.05	5.63	6.67	8.48	10.33	11.11	11.74	10.85	10.39
Mechanics	9.99	10.77	10.59	10.53	9.96	10.85	10.19	8.96	8.82	7.77	7.78	7.09	6.35
Mining	12.04	11.54	10.75	10.93	10.65	9.67	8.22	6.33	4.44	3.22	2.59	2.00	1.71
Civil Engineering	6.82	8.38	8.37	8.74	9.58	9.11	7.11	7.14	6.49	5.47	5.55	4.59	3.60
Chemistry	4.40	2.51	2.14	1.67	1.49	1.85	1.55	1.72	1.55	1.46	1.38	1.45	1.95
Medicine .....	.....	.....	.....	.30	.26	.55	.50	.09	.08	1.44	.98	.96	.66
At large .....	.....	.....	.....	.....	.53	1.33	1.18	*[2.06]	*[1.80]	*[1.46]	*[1.91]	.19	.....
Jurisprudence .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.27
Architecture .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.03

* In the above table, 1910-11 to 1913-14 inclusive, students at large are summarized separately, and are also distributed among the several colleges according to expressed collegiate preference.

† Letters and Science.

TABLE 5.—Summary of students registered to November 1 (approximately), 1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, and 1916.

A. The colleges at Berkeley:		Nov. 1, 1908	Nov. 1, 1909	Nov. 1, 1910	Nov. 1, 1911	Nov. 1, 1912	Nov. 1, 1913	Nov. 1, 1914	Nov. 1, 1915	Nov. 1, 1916
(1) Graduate students in the colleges of letters and sciences (including engineering)		328	337	416	460	533	577	661	782	902
(2) Undergraduate students in the colleges of letters and sciences (including engineering)		2538	2745	3033	3308	3753	4325	4629	4832	5140
Total		2866	3082	3449	3768	4286	4902	5290	5614	6042
B. The colleges in San Francisco:										
(1) Law		95	112	102	116	97	79	72	71	93
(2) Medicine (3rd and 4th years only) *		8	11	16	18	19	31	45	58	60
(3) Dentistry		56	57	59	75	89	90	112	141	177
(4) Pharmacy		69	78	85	78	87	114	95	93	95
Total		228	258	262	287	292	314	324	363	425
* Students in medicine, 1st and 2nd years, included in colleges at Berkeley:										
Graduate		8	13	10	16	24	42	28	27	39
Undergraduate		10	20	21	35	58	46	55	31	30
Total		18	33	31	51	82	88	83	58	69

TABLE 6A.—Graduate students at Berkeley, classified by colleges, November 1, 1916, with comparable figures for 1915.

NOTE.—In the columns showing the number of students, the upper left-hand figures refer to men, the lower to women; the figures on the right side are totals.

	1915		1916	
Letters and Science	228		265	
	330	558	422	687
Commerce	3		5	
	2	5	0	5
Agriculture	50		39	
	5	55	7	46
Mechanics	5		8	
	0	5	0	8
Mining	2		2	
	0	2	0	2
Civil Engineering	6		2	
	0	6	0	2
Chemistry	25		28	
	1	26	5	33
Medicine (1st and 2nd years).....	22		26	
	5	27	4	30
Jurisprudence	80		76	
	6	86	6	82
Architecture	8		5	
	0	8	2	7
	—	—	—	—
Total	429		456	
	349	778	446	902

TABLE 6B.—Undergraduate students at Berkeley, classified by colleges and classes, November 1, 1916.

NOTE.—In the columns showing number of students the upper left-hand figures refer to men, the lower to women; the figures on the right side are totals.

College	Seniors		Juniors		Sophomores		Freshmen		Specials		Totals	
Letters and Science	326		311		337		358		30		1362	
	388	714	470	781	569	906	716	1074	71	101	2214	3576
Commerce	63		55		102		87		11		318	
	1	64	6	61	8	110	8	95	1	12	24	342
Agriculture	134		106		121		113		10		484	
	2	136	3	109	5	126	3	116	1	11	14	498
Mechanics	71		51		77		90		13		302	
	0	71	0	51	0	77	0	90	0	13	0	302
Mining	28		20		29		31		5		113	
	0	28	0	20	0	29	0	31	0	5	0	113
Civil Engineering....	50		43		21		44		5		163	
	0	50	0	43	0	21	0	44	0	5	0	163
Chemistry	19		27		36		38		4		124	
	0	19	3	30	2	38	0	38	0	4	5	129
Medicine					6		32				38	
					1	7	0	32			1	39
Jurisprudence					4		61		3		68	
					0	4	4	65	1	4	5	73
Totals	691		613		733		854		81		2972	
	391	1082	482	1095	585	1318	731	1585	74	155	2263	5235

Deduct for duplicates as follows:

Letters and Science and Medicine	27		
	0	27	
Letters and Science and Jurisprudence	63		
	4	67	
Commerce and Jurisprudence	1		
	0	1	
			91
			4
			95
Net total			2881
			2259
			5140

TABLE 7.—Degrees conferred, 1907–16.

DEGREE	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916†
LL.D.	0 0 0	0 0 0	1 0 1	9 0 9	0 0 0	5 0 5	5 0 5	4 0 4	4 0 4	2 0 2
J.D.	3 0 3	6 0 6	7 0 7	7 1 8	8 1 9	10 1 11	11 1 12	15 1 16	18 2 20	21 0 21
Ph.D.	4 0 4	4 0 4	10 0 10	4 1 5	5 1 6	13 2 15	9 2 11	11 2 13	22 4 26	18 0 18
M.A.	5 4 9	9 3 12	7 10 17	7 11 18	5 12 17	4 20 24	6 16 22	12 26 38	43 46 89	46 53 99
M.L.	8 3 11	9 13 22	9 11 20	7 16 23	5 16 21	9 15 24	6 14 20	13 28 41	...	...
M.S.	9 4 13	2 3 5	12 10 22	20 5 25	27 8 35	26 9 35	43 13 56	41 18 59	20 5 25	27 2 29
Grad. in Arch.								2 0 2	3 0 3	1 0 1
Grad. in Publ. H.								0 0 0	4 1 5	0 0 0
Number of higher degrees	26 11 37	30 19 49	46 31 77	54 34 88	50 38 88	67 47 114	80 46 126	98 75 173	114 58 172	115 55 170
A.B.	10 22 32	14 29 43	10 17 27	8 31 39	7 26 33	11 25 36	23 24 47	11 24 35	201 310 511	192 262 454
B.L.	44 90 134	33 128 161	44 111 155	49 108 157	41 113 154	42 114 156	54 122 176	111 171 282	...	...
Nat. Sci.	7 13 20	13 34 47	19 16 35	34 20 54	37 34 71	70 61 131	80 65 145	56 64 120	5 11 16	...
Commerce	16 0 16	18 0 18	14 0 14	22 1 23	22 1 23	21 0 21	32 0 32	27 0 27	37 3 40	31 1 32
Agricult're	9 1 10	13 0 13	21 1 22	21 3 24	22 0 22	40 0 40	45 3 48	67 4 71	74 5 79	64 1 65
B.S. Mechanics	36 0 36	42 0 42	26 0 26	45 0 45	26 0 26	36 0 36	30 0 30	47 0 47	41 0 41	35 0 35
Mining	43 0 43	35 0 35	26 0 26	27 0 27	44 0 44	26 0 26	25 0 25	25 0 25	15 0 15	9 0 9
Civil Eng... ..	31 0 31	20 0 20	34 0 34	27 0 27	24 0 24	31 0 31	31 0 31	30 0 30	33 0 33	28 0 28
Chemistry	5 0 5	6 2 8	3 1 4	5 1 6	9 0 9	7 0 7	11 0 11	7 0 7	13 1 14	4 1 5
Number of bachelor's degrees {	201 126 327	194 193 387	197 146 343	238 164 402	232 174 406	284 200 484	331 214 545	381 263 644	419 330 749	363 265 628
LL.B.	28 0 28	14 0 14	14 0 14	23 0 23	19 0 19	28 1 29	22 0 22	30 0 30	18 0 18	8 0 8
M.D.	21 4 25	15 1 16	6 1 7	7 4 11	5 1 6	10 1 11	11 1 12	11 3 14	12 1 13	25 4 29
D.D.S.	18 0 18	20 0 20	15 0 15	16 0 16	10 0 10	15 0 15	20 0 20	23 0 23	19 0 19	29 0 29
*Ph.G.	24 2 26	10 1 11	18 1 19	27 2 29	30 2 32	31 0 31	28 2 30	41 2 43	36 1 37	27 2 29
Pharm.B.	0 1 1	1 0 1	0 0 0	1 0 1	3 1 4	2 0 2	0 0 0	1 0 1	1 0 1	2 0 2
Number profes- sional degrees {	91 7 98	60 2 62	53 2 55	74 6 80	67 4 71	86 2 88	81 3 84	106 5 111	86 2 88	91 6 97

* Ph.G. discontinued and replaced by Ph.C. between 1905 and 1911 inclusive. Beginning 1915, Ph.C. was given for completion of four-year course.

† Figures for 1916 cannot be completed before December 22, 1916.

TABLE 8.—Number of accredited schools each year since 1886.

	1886-87	1887-88	1888-89	1889-90	1890-91	1891-92	1892-93	1893-94	1894-95	1895-96
Number public high schools accredited	6	6	7	11	17	24	30	39	43	52
Number private secondary schools accredited..	0	1	2	2	6	7	10	9	14	15
Total number schools accredited	6	7	9	13	23	31	40	48	57	67
1896-97 1897-98 1898-99 1899-1900 1900-01 1901-02 1902-03 1903-04 1904-05 1905-06										
Number public high schools accredited	61	66	76	87	93	93	100	104	99	106
Number private secondary schools accredited..	15	16	15	23	23	22	18	20	21	23
Total number schools accredited	76	82	91	110	116	115	118	124	120	129
1906-07 1907-08 1908-09 1909-10 1910-11 1911-12 1912-13 1913-14 1914-15 1915-16										
Number public high schools accredited	114	122	140	147	155	172	181	192	189	191
Number private secondary schools accredited..	23	25	30	31	31	31	32	34	36	36
Total number schools accredited	137	147	170	178	186	203	213	226	225	227

NOTE.—Schools authorized to recommend though not regularly accredited: 1909-10, 34; 1910-11, 26; 1911-12, 35; 1912-13, 40; 1913-14, 45; 1914-15, 53; 1915-16, 49.

TABLE 9.—Enrollment of graduate students.

	1905-06	1906-07	1907-08	1908-09	1909-10	1910-11	1911-12	1912-13	1913-14	1914-15	1915-16
Total number of graduate students	351	281	324	403	425	501	578	648	707	832	1014
Number from University of California	240	159	177	236	214	258	307	342	371	424	431
Percentage of graduate students from University of California	68.3	56.4	54.6	58.5	50.3	51.4	53.1	52.8	52.3	51.0	53.7
Percentage of graduate students from other institutions	31.7	43.6	45.4	41.4	49.6	48.5	46.9	47.2	47.7	49.0	46.3
Total number of colleges and universities represented	79	67	81	90	98	120	122	152	146	168	207
*Number of graduate students taking higher degrees (masters' and doctors' degrees not including juris doctor)....	35	34	49	61	66	79	99	103	149	149	172
Percentage of graduate students taking higher degrees (masters' and doctors' degrees not including juris doctor)....	9.9	12.1	15.1	15.1	15.5	15.7	17.1	15.9	21.1	17.9	11.9
Number of graduate students receiving Ph.D.	6	5	4	10	5	6	15	10	14	22	22
Number of graduate students receiving the bachelor's degree	14	8	3	7	8	7	7	10	7	3	6
Number of graduate students taking juris doctor in the academic departments..	3	3	6	7	6	8	13	11	16	20	22

* In 1914-15 and 1915-16 includes degrees of Graduate in Architecture and Graduate in Public Health.

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UNIVERSITY OF CALIFORNIA BULLETIN

**A SERIES IN THE ADMINISTRATIVE BULLETINS
OF THE UNIVERSITY OF CALIFORNIA**

**Entered July 1, 1911, at the Post Office at Berkeley, California,
as second-class matter, under the Act of Congress
of July 16, 1894**

**Issued monthly from July to March, and twice a month from
April to June**

These Bulletins include:

- The Circular of Information, Academic Departments.**
- The Annual Announcement of the Summer Session.**
- The Annual Announcements of the Medical School, the Colleges of
Dentistry, Law, and Pharmacy.**
- The President's Annual Report.**
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